

# CTO

THE MAGAZINE FOR INFORMATION EXECUTIVES

FEBRUARY 15, 1994

VOLUME SEVEN NUMBER NINE

SEVEN DOLLARS

When IS management  
meets with business  
management, the sparks  
can really fly...



## ...and the results can sometimes be spectacular.

**W**orking together, business and IS executives can devise an information technology plan that solves a critical business problem, increases business value and improves bottom-line profits. That's an achievement worthy of an ESPRIT Award.

The Second Annual ESPRIT Awards program, created by *CIO* and Booz·Allen & Hamilton, recognizes those companies, government agencies and nonprofit organizations that are using IT to attain real business value in measurable ways.

If your technology investment is paying off in these ways, we want to hear about it. We urge you to participate in this program by filling out the ESPRIT Awards application form included with this issue of *CIO*.

The applicants must be a senior information executive and the senior executive partner for whom the system was developed. Winners will be chosen by a panel of independent judges, from among entrants who have sent in completed application forms by the deadline. Entrants will be judged on the following criteria:

- The importance of technology in achieving business results
- The pervasiveness of technology in creating the solution
- Strategic partnering
- Return on investment

The January 15, 1995 issue of *CIO* will feature profiles of the winning organizations. We'll take a look at how their IS/business partnerships have resulted in strategic technology investments that have a positive and sustained impact on the bottom line. Then in early 1995, *CIO* and Booz·Allen & Hamilton will host a special awards ceremony honoring these winning organizations.





# CIO

THE MAGAZINE FOR INFORMATION EXECUTIVES

FEBRUARY 15, 1994

VOLUME SEVEN NUMBER NINE

SEVEN DOLLARS

**SPECIAL ISSUE**

## What Price Client/Server?

*Calculating  
The Costs  
Of Hardware  
And Software  
Is Just The  
Beginning*

AN INTERNATIONAL DATA GROUP PUBLICATION

The Michigan Department  
of Transportation's  
D. Michael Cleary





P u t t i n g I m a g i n a t i o

BSN © Digital Equipment Corporation 1994. The Digital logo and OpenVMS are trademarks of Digital Equipment Corporation. DOS, Windows and NT are registered trademarks of Microsoft Corporation. OS/2 is a registered trademark of International Business Machines Corporation. MAC is a registered trademark of Apple computer. UNIX is a registered trademark of UNIX System Laboratories.



# Imagine Moving Your Business Critical Applications To Client/Server.

## Now Imagine It's Not As Risky As You Think.

The idea of entering a client/server environment may at first seem a bit perilous. But it's a move that will dramatically improve the efficiency of your business. And with Digital you'll have an array of proven products that offer the protection of a steel cage.

Our Open Client/Server products let you move your mission critical applications more efficiently, productively and confidently than you ever expected.

Our proven OpenVMS™ software delivers unmatched levels of application availability, data integrity and system security in a client/server environment. With servers that provide tight integration with all desktops including DOS®, Windows®, Windows/NT®, OS/2®, MAC®, UNIX® and OpenVMS. Plus data integration with the databases or PCLANs of your choice.

What's more, you have a range of advanced features that ensure your data is always available, accurate and secure. They even protect against disasters by providing Failover protection over complete networks in only seconds.

Best of all, with our Alpha AXP 64-bit servers, you're running on the fastest, most cost-effective servers available. These servers beat anything else out there on performance, price/performance and scalability. Not to mention that Alpha AXP gives you the flexibility to support multiple operating systems such as OpenVMS, Windows/NT and UNIX from Digital and other companies.

And of course, you'll have the added protection of the service and support only Digital can deliver, in over 100 countries.

To learn more, please call 1-800-DIGITAL.

T o W o r k

digital™





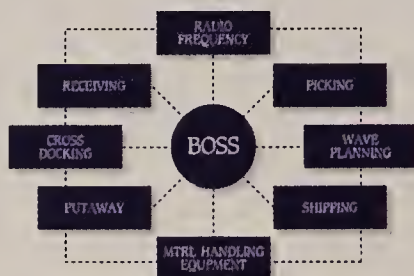
# Remind You Of Your Warehouse Management System?

Trade Up To The Ultimate Warehouse Management Software For The AS/400.

Meet the new Boss.

New CA-Warehouse Boss™. The software that can improve your bottom line.

It's the only totally integrated warehouse management software that enables everything you've got to work together — Scanners, RF, Conveyors, Pick-To-Lights, etc. The Boss is the "central nerve center" that tracks every detail from arrival through departure. It assures complete inventory accuracy



CA Warehouse Boss acts as a "central nerve center." warehouse into a real performer.

through cycle counting or physical inventory. And advanced pick planning, such as batch wave or order pick, optimizes your labor usage. So customers get the right orders. Every time.

The Boss is built using an advanced architecture so it can grow with you without costly custom programming.

Call 1-800 CALL CAI  
Ext. 150 for more information  
and a free Demo Disk of the  
software that can turn your



**COMPUTER ASSOCIATES**  
Software superior by design.

## New CA-Warehouse Boss™

© Computer Associates International, Inc., One Computer Associates Plaza, Islandia, NY 11788-7000.  
All product names referenced herein are trademarks of their respective companies.



# CIO

VOLUME 7, NUMBER 9

## SPECIAL REPORT ON CLIENT/SERVER

### OVERVIEW

28

#### No Free Ride

The costs of client/server are many, varied and often unpredictable. *By Thomas Kiely*



*Manager-as-coach* 36  
Cover photo by David Baditoi

### THE BOTTOM LINE

30

#### Variable Costs

Calculating the cost of a client/server solution has always been an imprecise science at best. While a number of studies have emerged to shine some light on the subject, the answer to the question, "What price client/server?" still seems to be, "It depends." *By Thomas Kiely*



*Esprit Awards application follows page 16*

### MANAGEMENT ISSUES

36

#### The Leading Role

Once cast primarily as supervisors and administrators, managers faced with the switch to client/server are learning a new part—and making it work. *By Richard Pastore*

### DATA INTEGRITY

46

#### Lines of Defense

Client/server exposes the computing environment to new risks. Keeping data safe and sound is tricky. Yet the very features that make client/server more vulnerable also provide it with inherently better survival qualities than other architectures. *By Peter Cassidy*

MORE ►►►

*Learning to lead* 36



“In business, even  
is a compromise



# everything e."

Introducing the exception.



The new, no-compromise  
Hewlett-Packard  
workstation. \$3,995.

It's time to take a stand. Because now you can not only afford the power of a workstation for your favorite applications. You can afford the quality and power of a Hewlett-Packard workstation.

At \$3,995, the HP 9000 Series 700 Model 712/60 is the only truly affordable workstation to include a 15" color monitor. A 260-MB disk. And 16 MB of RAM.

Since multimedia features are built right into the chip, you don't need expensive external hardware for video and imaging.

And you can exploit the full performance of the over five-thousand applications available for our workstations. With the power you've come to expect from Hewlett-Packard.

For more information about HP's new 712/60 and 712/80i workstations, call 1-800-637-7740, Ext. 8017. We'll tell you how HP's newest workstations have become the rule. By being the exception.





# EDA/SQL. The Standard In Client/Server Computing.



## The Unique Middleware Solution For Accessing Any Data Anywhere.

EDA/SQL FROM Information Builders has become the standard for data access across all platforms, within any enterprise-wide client/server architecture.

Because no other middleware product can match the transparency and language consistency of EDA/SQL as a gateway to Sybase, Oracle, DB2 and most other major databases—even all of your legacy data. Nothing else can match EDA/SQL's compliance with DRDA, TCP/IP, ODBC and many other important protocols or its range of support for every type of network.

Which is why it's been endorsed by every major vendor in the business, from IBM to Microsoft, and is the middleware of choice for the vast majority of Fortune 1000 companies.

### DESKTOP TO DATA WITH ZERO PLATFORM DEPENDENCE

Unlike other middleware products EDA/SQL isn't dependent on a single proprietary architecture. Any user, whether they're on a corporate LAN or connected to a departmental server, can get to any authorized data, wherever it resides.

From simple ad-hoc queries to OLTP transactions, EDA/SQL's scalability guarantees platform independence. And its flexibility lets you work in SQL-based applications using data from any database, relational or non-relational.

### HOW, AND WHY, EDA/SQL CAN GET THE DATA OTHERS CAN'T

EDA/SQL includes a complete suite of data management services, interfaces, and

tools for accessing and managing data within any client/server architecture.

No other middleware product can get to, analyze, and scrub imperfect data like EDA/SQL so it can be delivered to any DBMS engine, rightsized for any platform, and made accessible from any remote location.

In fact, only EDA/SQL gives you a combination of real-time cost management, user profile control, and a custom approach to data access.

For more information on how EDA/SQL can maximize the effectiveness of your client/server environment, or to attend a FREE Seminar...

**CALL 800-969-INFO**

In Canada call 416-364-2760

**Information  
Builders**





Views from  
the top 56

## SPECIAL REPORT (CONT.)

### VENDOR VIEWPOINTS

56

#### To Our Clients, With Best Wishes, From the Servers

The chief executives of four software firms weigh in with their best estimates—abetted by some analyst annotation—of what the client/server future holds in store.

By David H. Freedman

## COLUMNS

### PROJECT EVALUATION

24

#### INSIGHTS: WHO'S ON FIRST?

One of the most-important games managers play involves prioritizing IS project proposals. Though playing dirty may be part of the fun, it's time to consider improving the process.

By Ido Millet

### MIDDLEWARE

66

#### STATE OF THE ART: GOLDEN GATEWAYS

Moving to client/server makes it difficult to get at and work with legacy data. But there are a number of viable options and strategies that preclude having to rewrite the universe.

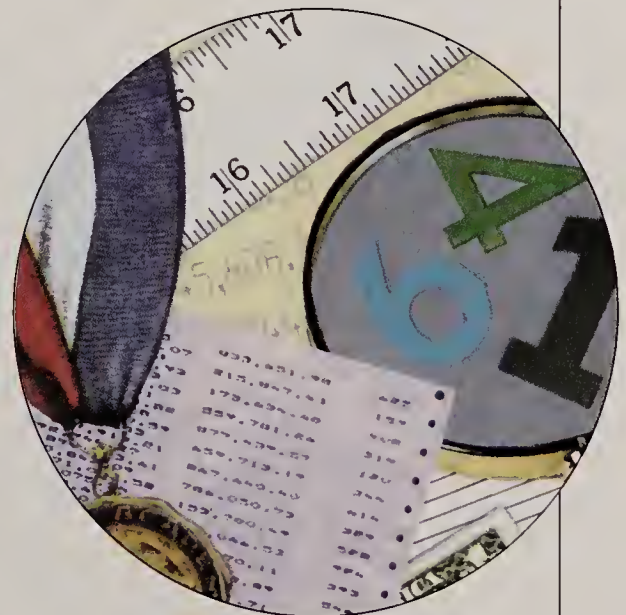
By John Edwards

### CLIENT/SERVER

74

#### FRONTLINE: BEYOND CLIENT/SERVER

The corruption of the client/server concept is not necessarily a negative thing. The term is serving as a rallying point for IS groups moving away from mainframe-centricity toward higher-order computing. By Portia Isaacson



First things  
first 24

## DEPARTMENTS

Editor's Letter 10

Publisher's Letter 12

Trendlines 14

- Off the Shelf
- Networking schools
- Catastrophe management
- Personal Journal
- SimHealth
- New ventures
- Models online
- Technology predictions
- War and remembrance

Index 80

FYI 82

# IBM wrote the book on business computing. Now we've written the catalogs, too.



It's IBM Direct from IBM—four easy-to-use catalogs that give you direct access to a vast array of IBM products and services that can help you run your business more efficiently.

Whether you reach us by phone, fax or mail, IBM Direct is the

most convenient way ever to get answers to questions before you buy, place orders and take advantage of special promotions.

Everything from compilers to complete CPU upgrades in four user-friendly catalogs.

Nothing's more compatible with your IBM system than IBM products and services. And ordering them has never been more convenient.

Simply call 1 800 IBM-CALL to order any of our free IBM Direct catalogs—*The IBM RISC System/6000® Direct Catalog*, *The IBM AS/400® Direct Catalog*, *The IBM Networking Direct Catalog* or *The IBM Mainframe Software Direct Catalog*. In these catalogs, you'll find a wide variety of hardware and software to fit any IBM midrange system, the latest in PC networking products and a

Service available in U.S. only.

® IBM, RISC System/6000 and AS/400 are registered trademarks of International Business Machines Corporation.

©1993 IBM Corporation



# I want a Direct line to the IBM product line.

Please send me a free:

- ☐ IBM RISC System/6000® Direct Catalog
- ☐ IBM AS/400® Direct Catalog
- ☐ IBM Networking Direct Catalog
- ☐ IBM Mainframe Software Direct Catalog



Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

Telephone \_\_\_\_\_

To receive your catalogs even faster, simply dial 1 800 IBM-CALL (1 800 426-2255) or fax us at 1 800 2 IBM FAX (1 800 242-6329), attn: dept. 100H.

cially trained IBM Direct staff members who are experts on your particular platform.

The IBM Direct staff is prepared to answer questions and process your orders quickly and efficiently. When necessary, they'll prepare configurations based on your existing IBM installation and fax their recommendations to you—so you can make well-informed decisions. Plus, they'll also ensure that your local IBM representative or team is available for assistance with installation and support.

## IBM quality backed by the IBM guarantee.

When you buy from IBM Direct, you get the full IBM commitment to quality and customer satisfaction. The same top-quality hardware products backed by

Choosing IBM has always been an easy call. Now buying IBM products is easy, too. To place an order or request your free IBM Direct catalogs, simply dial 1 800 IBM-CALL (1 800 426-2255), Dept. 100H, weekdays between 8 a.m. and 8 p.m. ET, or complete and return the attached business reply card.

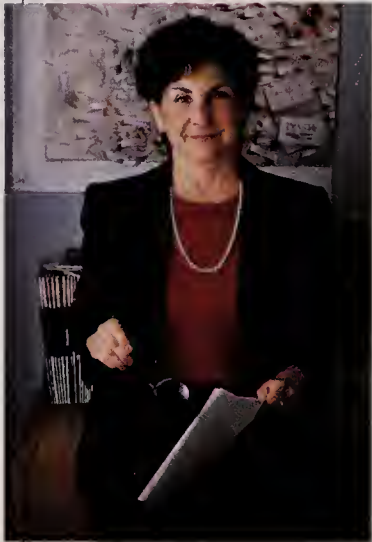


**IBM**  
**DIRECT**

100H

**IBM**  
**DIRECT**





The client/server environment has the potential to create a harmony that blends the sounds of all facets of the organization. But getting there is bound to involve screeching and out-of-tune instruments that produce cacophony before harmony.

This issue of *CIO* looks at the problems that continue to create disharmony for information executives beginning the inevitable march to the client/server tune. One thing is certain: Moving to a client/server infrastructure is the technical and cultural challenge of this decade. Four out of five CIOs at a recent *CIO* editorial meeting indicated they were developing a client/server infrastructure. And based upon

conversations with researchers following this market, that percentage translates to what's happening in most companies.

Fortunately, a growing body of knowledge is helping CIOs formulate client/server strategies that are right for their organizations. Taking a big-picture view is critical in creating this environment because the entire enterprise—or the “E word,” as one consultant describes it—is often involved.

Senior Editor Tom Kiely writes about the economics of moving to client/server in his article “Variable Costs,” beginning on Page 30. Researchers are discovering a variety of outcomes and costs as they delve into these issues. A new rule of thumb is that “costs are situational.” Kiely also reports on one cost model created by the Gartner Group.

Senior Writer Richard Pastore provides another view of the client/server pastiche—management and human-resources challenges as technology edges out to the front lines (see “The Leading Role” on Page 36). IS managers describe their experiences becoming “coaches,” letting go of day-to-day tasks and providing more consultation to corporate departments. Pastore profiles four managers who have made changes because of the demands of the client/server world.

Meeting the client/server challenge makes CIOs even more visible than they have been in the past. As one executive says, “Those who commit to the changes will find job security; the others will not.”

*Marcia Blumenthal*



© By CIO Publishing Inc.

**Publisher/Editorial Director** JOSEPH L. LEVY

**Editor In Chief** MARCIA BLUMENTHAL

**Managing Editor** LEW MCCREARY

**Art and Design Director** MARY LESTER MARSHALL

**Associate Managing Editor** ABBIE LUNDBERG

**Senior Editor** THOMAS KIELY

**Senior Editor** LEIGH BUCHANAN

**Associate Editor** KATHERINE A. AUER

**Senior Writer** RICHARD PASTORE

**Senior Writer** CAROL HILDEBRAND

**Senior Writer** ANNE STUART

**Staff Writer** MEGAN SANTOSUS

**Staff Writer** NANCY HITCHCOCK

**Copy Editor** CHERYL R. DAVIS

**Assistant Art Director** MOIRA GILLIS

**Design Associate** KIM MORNEAU

**Design Associate** KELLI WALTON

**Editorial Assistant** BROOKE R. BURTON

**Director of Marketing** CATHY O'LEARY HAYES

**Production Director** LORI BETH SADEWITZ

**Director of Finance & Admin.** WALTER MANNINEN

**Assistant to the Publisher** DIANE MARTIN

**Circulation Director** CAROL A. SPACH

**Fulfillment Manager** SUSAN WOODWORTH

**Senior Promotions Specialist** MARCY L. DILL

**Sales & Marketing Specialist** BRIDGET CAMMARATA

**Sales & Marketing Assistant** DOT CASPERSEN

**Circulation Assistant** DENISE PERREAULT

**Administrative Assistant** LYNN J. PALMQUIST

**Systems Specialist** MICHAEL DI PALMA

**VP/GM, Exec. Programs** LYNDY ROSENTHAL

**Director, Exec. Programs** DEBORAH HALON

**Manager, Program Services** ELIZABETH L. LADENDECKER

**Administrator, Exec. Programs** CHRISTINE MCCARRON

**Ancillary Products Specialist** BILL KERBER

**Contributing Writers** Peter Cassidy, John Edwards, David H. Freedman, Portia Isaacson, Ido Millet

**Editorial Offices** CIO Publishing Inc., 492 Old Connecticut Path, P.O. Box 9208, Framingham, Mass. 01701-9208 (508) 872-8200, FAX (508) 879-7784. Printed in the U.S.A.  
**Subscriber Services** (800) 788-4605, FAX (508) 872-0618.  
**List Services** (800) 859-LIST



**Board Chairman** PATRICK J. MCGOVERN

**President** WALTER BOYD

**Executive Vice President** WILLIAM P. MURPHY





For years, EMC has been the performance leader

which utilizes high performance 3.5" HDAs.



*Symmetrix 4000  
Series ICDA*

in disk storage systems.

And now, with the introduction of the

enhanced Symmetrix 4000

series of Integrated Cached Disk

Array (ICDA®),

And by integrating an

enhanced channel **EMC<sup>2</sup>**  
THE STORAGE ARCHITECTS

adapter, we've measurably

boosted the 4800's performance. That means

improved speed, availability,

we're pulling ahead of the competition once again.

and efficiency. For more information on our

We've doubled the capacity of the

enhanced Symmetrix 4000 series of

Symmetrix 4200 by introducing the 4200-2S,

ICDA, call 1-800-424-EMC2, Ext. LM680.



# Our enhanced Symmetrix 4000 disk storage series is leaving the competition behind.



A major barrier to implementing client/server technology has traditionally been the lack of information about what it really costs. In preparing this issue, *CIO*'s editorial staff found that the economics of client/server are situational—that is, costs vary greatly from company to company and from system to system. This often makes it very difficult for information executives to persuade top management to adopt client/server strategies.

Respected research organizations, including International Data Corp., Forrester Research Inc. and the Gartner Group, are beginning to offer guidelines to help CIOs

better predict the price tag. Now the vendors that offer client/server solutions must rise to this challenge as well by providing their customers with tangible information about the costs that can occur across a range of situations. Vendors also need to articulate the hard and soft benefits of client/server through real-world examples. And in this age of cost cutting and staff downsizing, they must help the CIO drive home the point that client/server is a long-term investment, not a panacea for the organization's short-term business ills.

By demystifying client/server costs, vendors will help CIOs sell the "brave new world" to top management while shortening the sales cycle for their own products and services.

*Wayne L. Woz*

P.S. There's still time to join Tom Peters and our distinguished speakers at the next CIO Perspectives conference, "Re-Visioning IT: Achieving an Enterprise Perspective," March 13-16 at the Hyatt Grand Cypress in Orlando, Fla. To participate, please call our toll-free registration center at 800 366-0246.

# Coming In CIO

## Business As Unusual

Things have changed considerably at Web Converting. Supervisors at this materials-conversion plant no longer issue orders by edict, and middle managers have ceded day-to-day decision-making authority to teams of employees who set their own priorities. For Web, participative management and continuous learning are now the name of the game.

## Cooperative Ventures

The basic idea of a strategic marketing agreement is that two companies join forces because each has something that the other needs. The result, by rights, should be something that benefits the customer. Although getting there may not always be obstacle-free, the rewards can be well worth the effort. *CIO* examines the anatomy of a joint-venture agreement.

## Spanning The Globe

Seeing opportunities for growth in emerging foreign markets, Tambrands Inc. had to create a kind of Esperanto that would allow a plant in Auburn, Maine, to perform the same processes in the same manner as a plant in Kiev, Ukraine. And Tambrands wanted those processes to be dictated by best practices as defined by the most-efficient and -effective parts of the company.



# DEAR MR. PRESIDENT:

According to the Gartner Group, "Over half of all client/server projects fail, and 90% of them because the right systems management structure was not in place." Send your CIO to one of our free seminars and spare yourself ... the blues.

**T**alk about a clear and present danger! It's taken a generation to develop reliable main-frame systems management technology. And now everybody wants you to massively downsize and distribute client/server systems world-wide.

Sir, we can help you. We're 4th Dimension Software, the emerging leader in enterprise operations automation. In 1993, we delivered the first elements of our new Enterprise Control Architecture™. The Enterprise ControlStation™ and MultiPlatform CONTROL-M® allow you to schedule jobs and tasks on any number of MVS, VAX/VMS, UNIX and AS/400 systems — from a single RS/6000 or SPARCstation. But that's only the beginning. We'll soon add up to 40 plat-

forms that will allow a single person to control all aspects of enterprise operations from a single graphical workstation — all without specific training on the platforms being controlled.

Please call today, to reserve your CIO's seat for the next seminar in your area. We'll show him or her how to meet the challenges of distributed systems management — so client/server technology can be music to your ears. And, if you're actually *The President* ... well ... we'd be delighted to bring the seminar to you. We'll even bring our instruments. But you'd better have you-know-who make that call today. So you won't be playing the blues tomorrow.

RSVP BY CALLING  
**800-347-4694**  
**EXT. 2803**  
(OR 714-757-4300  
FROM OUTSIDE THE US)

# 4D

4th DIMENSION SOFTWARE INC.

THE EMERGING LEADER  
IN ENTERPRISE OPERATIONS AUTOMATION

## HOW TO DOWNSIZE WITHOUT GETTING THE BLUES SEMINAR

### CITIES & DATES

|                    |        |
|--------------------|--------|
| Albany, NY         | Mar 24 |
| Atlanta, GA        | Feb 3  |
| Baltimore, MD      | Mar 1  |
| Birmingham, AL     | Apr 7  |
| Boston, MA         | Feb 22 |
| Calgary, AB        | Mar 8  |
| Charlotte, NC      | Mar 30 |
| Cincinnati, OH     | Mar 8  |
| Cleveland, OH      | Mar 23 |
| Columbus, OH       | Mar 16 |
| Dallas, TX         | Feb 16 |
| Denver, CO         | Mar 22 |
| Des Moines, IA     | Apr 28 |
| Detroit, MI        | Mar 30 |
| Ft. Lauderdale, FL | Apr 28 |
| Garden City, NY    | Mar 3  |
| Greenville, SC     | Mar 23 |
| Harrisburg, PA     | Apr 19 |
| Hartford, CT       | Apr 26 |
| Honolulu, HI       | Mar 22 |
| Houston, TX        | Mar 10 |
| Indianapolis, IN   | Apr 13 |
| Jacksonville, FL   | Apr 19 |
| Kansas City, MO    | Apr 6  |
| Little Rock, AR    | Mar 29 |
| London, ONT        | Apr 14 |
| Los Angeles, CA    | Mar 31 |
| Memphis, TN        | Apr 27 |
| Milwaukee, WI      | Apr 20 |
| Minneapolis, MN    | Feb 17 |
| Montgomery, AL     | Apr 21 |
| Montreal, PQ       | Mar 16 |
| Nashville, TN      | Mar 15 |
| New Orleans, LA    | Feb 24 |
| New York, NY       | Feb 15 |
| Orange County, CA  | Apr 12 |
| Ottawa, ON         | Feb 23 |
| Philadelphia, PA   | Mar 10 |
| Phoenix, AZ        | Apr 12 |
| Pittsburgh, PA     | Mar 31 |
| Portland, OR       | Mar 24 |
| Quebec City, PQ    | Mar 29 |
| Raleigh, NC        | Feb 22 |
| Regina, SK         | Apr 6  |
| Richmond, VA       | Mar 1  |
| Rochester, NY      | Apr 7  |
| Rosemont, IL       | Feb 3  |
| Salt Lake City, UT | Mar 9  |
| San Antonio, TX    | Feb 2  |
| San Diego, CA      | Apr 13 |
| San Francisco, CA  | Apr 5  |
| Seattle, WA        | Feb 17 |
| Somers, NJ         | Mar 15 |
| St. Louis, MO      | Apr 14 |
| Toronto, ONT       | Feb 16 |
| Tulsa, OK          | Apr 5  |
| Tysons Corner, VA  | Mar 9  |
| Universal City, CA | Feb 2  |
| Washington, DC     | Feb 15 |
| White Plains, NY   | Apr 20 |



# TRENDLINES

## EDUCATION AND TECHNOLOGY

### A LEARNING EXPERIENCE

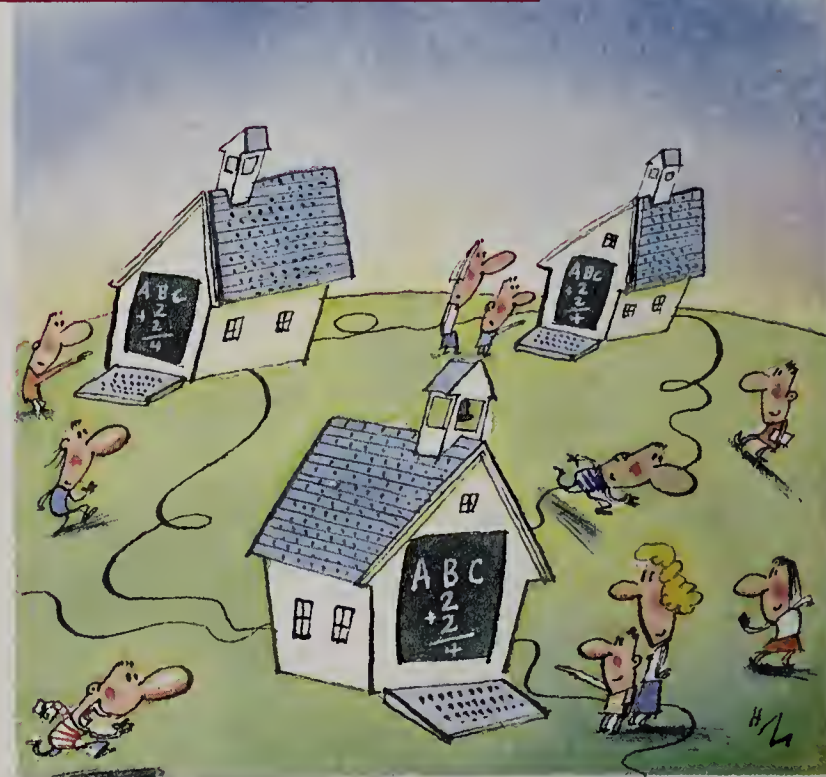
As preparation for the world of work, typing class just doesn't cut it anymore. With information technology penetrating nearly every function in every industry, many believe that students should begin mastering computers as early as kindergarten.

That was certainly the belief of Mike Bookey, a founding partner in Digital Network Architects Inc., an IT consulting firm based in Seattle. Bookey's technology

expertise made him a logical candidate when, in 1989, his daughter's teacher needed someone to help revitalize her middle school's aging computer lab.

At the same time, the almost \$3 million that the Issaquah, Wash., school district had approved for high-technology investment was gathering interest in a bank while officials decided how best to use it. The general plan was to divvy up the funds among schools and teachers, who could spend it any way they liked—the result of which was bound to be a patchwork of unrelated, incompatible technologies. Bookey had a better idea.

What he envisioned was an "electronic village for



learning"—a districtwide computer network that would allow students and teachers to use everything from E-mail, spreadsheets and word-processing programs to an electronic library and student-informa-

tion services. The school district said it didn't have the resources to build multi-platform LANs in every school, but Bookey countered that it did—in the form of its students. The project would not only leave Is-

## MEDICARE'S BANKRUPT; LOSE ONE TURN

Call it "Mortal Kombat" for policy wonks, or "Super Mario Brothers" with Hillary Rodham Clinton and Ira Magaziner standing in for the plumbers. With its full-color graphics, animation and sound effects, Maxis Business Simulations' new interactive product, SimHealth, does resemble a traditional computer game. But its mission is instructive, not destructive: to help the public better understand the complicated issues that underlie the

nation's health-care debate.

The creators of the popular SimCity computer game envision SimHealth being used by



a wide range of concerned citizens to evaluate current policy and new proposals. The player begins on Main Street, "a panorama of structures that typify government and daily life: Congress, hospitals, homes, office buildings, even jails." A traffic accident occurs, reminding the player

that health is fragile and motivating him or her to run for office and begin reexamining the current system. Duly elected,

the policy-maker must assess his or her positions in relation to four values: liberty, equality, efficiency and community.

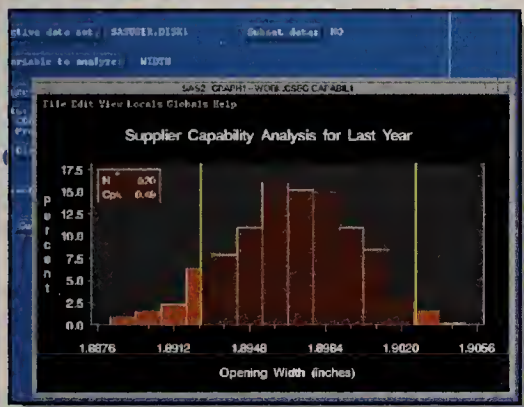
The player makes choices; screens display the results and offer more and more information. Meanwhile, Main Street buildings decline or flourish based on the player's decisions. Players who blow it can be booted out of office.

The program incorporates elements from the Clinton plan and from other health-care plans dating back to the Truman administration. To order call 800 824-2643. ■

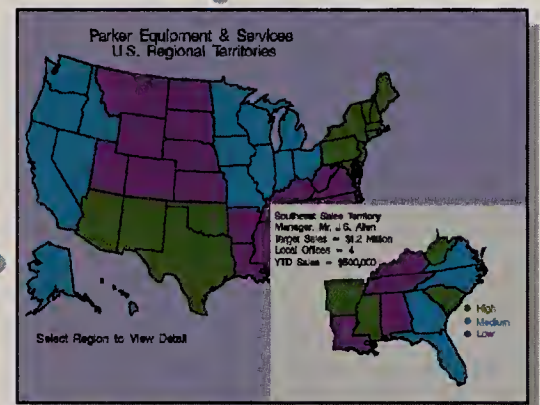
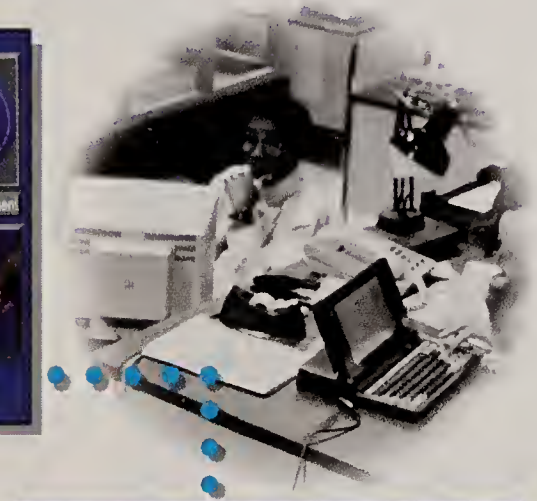


# The Client/Server Edge for EIS and Beyond

The SAS® System is a new concept in client/server software. It delivers mission-critical data to the desktops of every decision maker... and then lets you turn data into meaningful information. Your servers not only dole out your data but serve up compute resources as well. Millions of records can be summarized, and just the results delivered to the desktop.

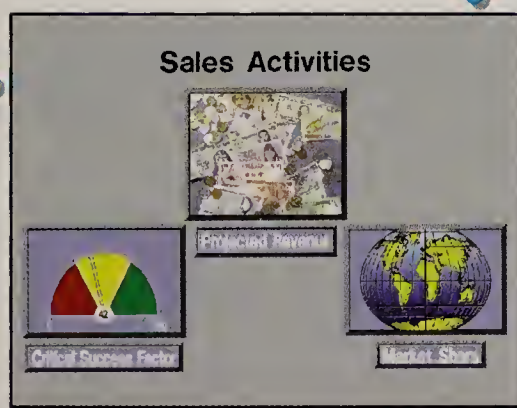


The world's leading information delivery system provides easily customized menus. Decision makers at every level can drill down through your vast information reservoir, determine critical success factors, forecast trends, and more. Hundreds of applications for analyzing data and for generating reports are right at your fingertips.



The SAS System's exclusive MultiVendor Architecture™ means you can share data and applications (or parts of applications) across all your hardware. Applications run where it makes most sense to run them... allowing you to maximize use of all your computing resources while protecting your existing applications investment.

Call us today at 919-677-8200 for a free video, plus details about a free software evaluation.



SAS Institute Inc.  
Phone 919-677-8200  
Fax 919-677-8123

# The SAS® System

Enterprise Wide Information Delivery





Fred was great.  
Ginger was great.  
Together they  
were spectacular.

*The partnership makes it work!*

**F**red Astaire certainly held his own. But when he paired up with Ginger Rogers, it was pure magic. The same holds true in business. When two diverse business departments forge alliances, the results are often nothing less than brilliant.

That's the idea behind the ESPRIT (*Excellence in Strategic Partnering for Return from Information Technology*) Awards Program. The ESPRIT Awards recognize the strategic partnership between IS management and business management as they apply IT to improve business value and increase profits. Since its inception in 1993, this program has recognized a select group of companies, government agencies and nonprofit organizations that are using IT to attain real business value in measurable ways.

If you can demonstrate the strategic value and increased bottom-line profits as a result of a technology investment, we want to hear about it. We urge you to participate by filling out the ESPRIT Awards application form bound in this issue of *CIO*. If the entry form has been removed, please call Brooke Burton at (508) 935-4449.

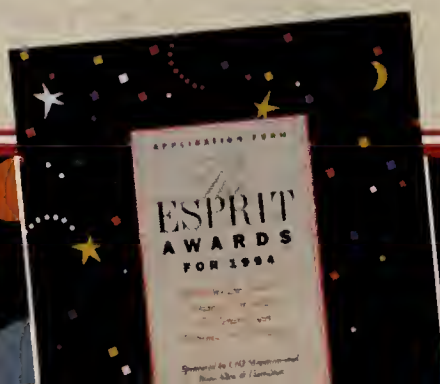
*ESPRIT Awards sponsored by*



THE MAGAZINE FOR INFORMATION EXECUTIVES

*and*

BOOZ·ALLEN & HAMILTON





APPLICATION FORM

*The*  
**ESPRIT**  
**AWARDS**  
**FOR 1994**

*Honoring Excellence in  
Strategic Partnering  
for Return from  
Information Technology*

*Sponsored by CIO Magazine and  
Booz-Allen & Hamilton*

**Application Deadline**  
**May 16, 1994**



# With ESPRIT, partnership takes on a whole new meaning

**part·ner·ship** (pärt' nər-ship') *n* 1. The state of being a partner; an association of partners. 2. A contract entered into by two or more persons in which each agrees to furnish a part of the capital and labor for a business enterprise, and by which each shares in some fixed proportion of profits and losses.

—*The American Heritage Dictionary*

*If* there is one word that defines the ESPRIT Awards it's "*partnership*." This program honors those business and technology executives who have joined forces to plan the acquisition of information technology, implement it and quantify its strategic business value in both hard-dollar and soft benefits.

### Recognizing Strategic Partnering

*CIO* and Booz·Allen & Hamilton created the ESPRIT Awards to recognize this spirit of cooperation as well as the ability to prove a positive and sustained impact on the bottom line from strategic IT investments. By communicating the payback of your technology solution, *CIO* and Booz·Allen & Hamilton hope to encourage other businesses to follow your lead.

### Obtaining Real Business Value

What business goals have you achieved with your technology solution? Lowered costs? Raised profits? Increased market share? Enhanced image? The list is endless. There are both hard-dollar and soft benefits that come with IT investments. If you and your business partner can provide

tangible facts and figures about return on investment from information technology, we urge you to participate in the ESPRIT Awards program.

### Our Challenge To You

If your technology investment is paying off, we want to hear about it. To participate, simply fill out this ESPRIT Awards application. The January 15, 1995 issue of *CIO* will feature profiles of companies, government agencies and nonprofit organizations that successfully document how their partnered IT investments have increased business value.

Then in early 1995, *CIO* and Booz·Allen & Hamilton will host a special awards ceremony honoring these winning organizations.

For additional information, please contact Brooke Burton at (508) 935-4449.

#### ESPRIT Awards Timeline

##### Applications Due:

May 16, 1994

##### Judges Select

##### Winners:

September 1994

##### Announcement of

##### Winners:

January 1995

##### Awards Ceremony:

Winter 1995



# The 1994 ESPRIT AWARDS

*Honoring Excellence in Strategic Partnering for Return from Information Technology*

*Sponsored by CIO Magazine and Booz·Allen & Hamilton*

**S** **TATEMENT OF PURPOSE**  
While most executives are aware of the potential benefits of information technology (IT), some remain unsure of its actual value to their organizations. In order to demonstrate how strategic IT investments initiated by a joint business/IS team can produce both hard-dollar and soft benefits, *CIO Magazine* and Booz·Allen & Hamilton are cosponsoring the second annual ESPRIT Awards. The honorees will be public and private companies, government agencies and not-for-profit organizations which have proven that strategic IT investments can have a positive and sustained impact on the bottom line. Winners will be honored at an awards ceremony and profiled in the January 15, 1995 issue of *CIO Magazine*.

## **CRITERIA**

Winners will be chosen by a panel of independent judges from among entrants who have sent in completed application forms by May 16, 1994. Entries will be judged on the following criteria:

- The extent to which the system furthers the organization's strategic objectives.
- The measurable financial return the system provides to the organization.
- The level of partnership achieved throughout the course of the project by the business unit and the IS organization.
- The extent to which IT was key to the achievement of the overall business solution—the "couldn't have done it without technology" factor.

Telephone interviews, and in some cases face-to-face interviews, will be requested by the Booz·Allen screening teams. These teams may elect to visit the applicants'

sites in order to review in greater depth the system and the environment in which it is functioning, and to examine financial results.

## **ENTRY GUIDELINES**

- The system must have been *operational* prior to July 1, 1992.
- Entries must be made jointly by the IS executive AND the business-unit executive for whom the system delivers value.
- Entrants must agree to be featured, along with their system and organization, in a *CIO* article.
- Entries must be complete. Incomplete entries may be returned for elaboration or disqualified.
- Entries must be on 8.5x11-inch paper, one side per sheet.
- The application form may be reproduced.
- Multiple entries from one company will be considered, but each entry must be submitted separately.
- Vendors, public-relations and advertising firms, consultants and other third parties may NOT apply on behalf of another firm. They are encouraged to forward this form to the "owner" of the system, or to contact *CIO Magazine* to recommend that an application form be sent to their client.
- All entries must be computer-generated or typed; no handwritten entries will be accepted.
- When feasible, an additional copy of the entry should be sent on a 3½ -inch disk. Electronic entries must be limited to word-processing and spreadsheet packages that are compatible with *Microsoft Word* and *Microsoft Excel* on an IBM or Macintosh platform.

## **DEADLINE**

May 16, 1994

## **MAIL TO**

ESPRIT Awards  
CIO Magazine  
492 Old Connecticut Path  
PO Box 9208  
Framingham, MA  
01701-9208

## 1. COMPANY/BUSINESS UNIT

NAME OF PARENT COMPANY:

CITY, STATE WHERE HEADQUARTERED:

IF A COMPANY, IS IT ☐ PUBLICLY HELD? ☐ PRIVATELY HELD?

ANNUAL REVENUES:

INDUSTRY:

NAME OF BUSINESS UNIT OR ORGANIZATION:

CITY, STATE WHERE LOCATED:

NUMBER OF EMPLOYEES AT BUSINESS UNIT:

## 2. ENTRANTS

NAME OF ENTERING BUSINESS-UNIT EXECUTIVE:

TITLE:

NAME OF DIVISION, DEPARTMENT OR UNIT:

ADDRESS:

CITY:

STATE:

ZIP:

TELEPHONE:

( )

FAX:

( )

NAME OF ENTERING I.S. EXECUTIVE:

TITLE:

NAME OF I.S. ORGANIZATION:

ADDRESS:

CITY:

STATE:

ZIP:

TELEPHONE:

( )

FAX:

( )

## 3. SUPPORTERS

Please list four people who are willing to be interviewed with regard to the system, its development, its use and the value returned. At least one should be a member of the technology team that developed the system and should have played a significant role. At least one should be a primary user from the sponsoring business unit. The other two may be from either organization or represent

suppliers, customers or others intimately familiar with the system.

A. NAME:

TITLE:

TELEPHONE:

( )

REASON FOR INCLUSION:

B. NAME:

TITLE:

TELEPHONE:

( )

REASON FOR INCLUSION:

C. NAME:

TITLE:

TELEPHONE:

( )

REASON FOR INCLUSION:

D. NAME:

TITLE:

TELEPHONE:

( )

REASON FOR INCLUSION:

## 4. THE NOMINATED ORGANIZATION

Please tell us about your organization (company, business unit, agency) in 500 words or less. Include information on:

- when the organization was founded;
- mission statement;
- major products and services;
- markets served;
- any other data you believe to be relevant in terms of general background.

## 5. THE NOMINATED SYSTEM

Tell us about the nominated system and demonstrate its importance to the organization by completing the following sections. Please limit your material to five pages.

- **Objectives:** Identify the primary business objectives of the IT investment.
- **Scope and Impact:** Identify the functions (e.g., customer service, manufacturing, planning) that were changed by the system, the nature of those changes and their impact on the business. Identify other business-change initiatives tied to the IT investment.



• **Furthering Strategic Objectives:** Describe how the technology investment is furthering the organization's strategic objectives, including any new business initiatives. Note any significant event that would help us evaluate the nominated system's value. Examples might include a merger, a new distribution channel or a significant regulatory change.

• **Partnership:** Describe how the business unit and IS organization worked together throughout the project—from concept to implementation. What were the specific tasks fulfilled by the business unit? IS organization?

• **The Importance of IT:** Identify the different components of the overall business change (e.g., business reengineering, downsizing, cycle times). Explain the importance of the IT component to the overall business change. Could the results have been achieved without IT?

## 6. TECHNICAL PROFILE

Briefly describe the technology of the nominated system. Please include the names of major vendors and products. If you prefer, you may attach a document containing a technical description of the system, providing it is no more than five pages.

NOTE: The examples provided here are meant to be illustrative, not all-inclusive.

- **Architecture** (e.g., client/server, distributed, mainframe)
- **Hardware** (e.g., mainframe/parallel processor, minicomputer/server, desktop computers, handheld/portable devices)
- **Software** (e.g., operating systems, database system, shells, application software)
- **Software development tools** (e.g., CASE, 4GLs, GUI developers, object-oriented development tools)
- **Networking/communications hardware, software and services** (e.g., modems, routers, electronic-mail packages, carriers and public networks)

## 7. TRUTH OF INFORMATION/RELEASE

The following release must be signed by both nominating executives if the application is to be considered. Unsigned releases will invalidate the entry.

*I hereby state that the information provided is true and complete to the best of my knowledge and belief.*

*I authorize the release and use of, in connection with the ESPRIT Awards program, any and all materials furnished by me or others at the company contacted for this judging. I understand that information submitted on this application or subsequently gathered during the evaluation and judging process may be used in articles or any other type of publicity relating to the ESPRIT Awards program.*

*I also authorize the release and use of my name, my company's name and my likeness, including but not limited to any photographs and any recording of my voice or image that may be taken of me for CIO Magazine. I agree that no compensation shall be due me or my company for such usage.*

*I recognize that failure to meet these conditions or to provide sufficient material that can be published can cause the application to be rejected at any point in the process at the sole discretion of the sponsors.*

SIGNATURE OF NOMINATING BUSINESS EXECUTIVE:

DATE:

SIGNATURE OF NOMINATING I.S. EXECUTIVE:

DATE:

## 8. OTHER EDITORIAL OPPORTUNITIES

If you are not selected as an award recipient, are you willing to be contacted for inclusion in other articles in CIO Magazine? Yes ☐ No ☐

How did you learn about the ESPRIT Awards program?

- |                                                |                                             |
|------------------------------------------------|---------------------------------------------|
| <input type="checkbox"/> CIO Magazine          | <input type="checkbox"/> Academician        |
| <input type="checkbox"/> Booz·Allen & Hamilton | <input type="checkbox"/> Consultant         |
| <input type="checkbox"/> IS staff member       | <input type="checkbox"/> Systems integrator |
| <input type="checkbox"/> Other publications    | <input type="checkbox"/> PR Agency          |
| <input type="checkbox"/> Vendor                | <input type="checkbox"/> Advertising Agency |

☐ Other (please identify) \_\_\_\_\_

## C H E C K L I S T

### Have you filled out...?

- ☐ Company/Business-Unit, Entrants and Supporters Information
- ☐ Return on Investment Chart

### Have both entrants signed and dated...?

- ☐ Truth of Information/Release

### Have you included on separate pages...?

- ☐ Nominated Organization
- ☐ Nominated System
- ☐ Technical Profile
- ☐ Additional Return on Investment Material

### Have you checked off...?

- ☐ Other Editorial Opportunities
- ☐ How you learned about the ESPRIT Awards program?

## 9. QUANTIFYING RETURN ON INVESTMENT

### Directions

- The table below provides a framework for identifying costs and benefits. Feel free to break down any line item into additional components, or to add new line items if necessary. Please explain how the figures were arrived at, on separate sheets if necessary.
- In quantifying costs and benefits, every effort should be made to quantify strategic and "intangible" benefits (e.g., competitive positioning, risk management). It would be helpful to attach any documents you have prepared that explain the system's costs and benefits.
- You may also include your own return on investment calculations and frameworks to further explain your return on investment. These can be attached to your application form.

### Guidelines for Quantifying Return on Investment

- Provide return and investment figures five years out from initial implementation. If the system has been in operation for less than five years, you may project future investments and returns *based on historical data*.
- All investments and expenditures made before implementation should be included in year "zero."
- Distinguish actual costs and benefits from projected costs and benefits.
- To the extent the nominated system replaced older technology, the system investment reflected in the tables should be net of corresponding salvage values and ongoing costs.
- Return and investment figures should be stated on an approximated after-tax basis.

NOTE: The examples provided below are meant to be illustrative, not all-inclusive. All numbers are subject to verification.

| Investment:                                                                                                                 | Year "0"<br>19__-19__ | Year 1<br>19__ | Year 2<br>19__ | Year 3<br>19__ | Year 4<br>19__ | Year 5<br>19__ | TOTAL |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------|----------------|----------------|----------------|----------------|-------|
| <b>Technology purchases</b> (e.g., hardware, software, lease payments, amortization)                                        |                       |                |                |                |                |                |       |
| <b>System development and implementation</b> (e.g., systems integration and consulting fees, initial training)              |                       |                |                |                |                |                |       |
| <b>Ongoing system maintenance and enhancement</b> (e.g., updating system, maintaining and replacing software, adding users) |                       |                |                |                |                |                |       |
| <b>Ongoing system operations</b> (e.g., ongoing training and consulting, help desks, other ongoing support)                 |                       |                |                |                |                |                |       |
| <b>Nonsystems operational charges</b> (e.g., increased labor or inventory, early retirement program for laid-off employees) |                       |                |                |                |                |                |       |
| <b>Total Annual Investment</b>                                                                                              | \$                    | \$             | \$             | \$             | \$             | \$             | \$    |

**Total Investment: \$**

| Return:                                                                                                 | Year 1<br>19__ | Year 2<br>19__ | Year 3<br>19__ | Year 4<br>19__ | Year 5<br>19__ | TOTAL |
|---------------------------------------------------------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|-------|
| <b>Incremental profits from enhanced revenue</b> (e.g., new revenue streams, productivity improvements) |                |                |                |                |                |       |
| <b>Reduced operating costs</b> (e.g., labor, material)                                                  |                |                |                |                |                |       |
| <b>Reduced capital investments</b> (e.g., capital equipment)                                            |                |                |                |                |                |       |
| <b>Reduced inventory</b>                                                                                |                |                |                |                |                |       |
| <b>Indirect cost avoidance</b> (e.g., avoided hiring, fines, fees)                                      |                |                |                |                |                |       |
| <b>Total Annual Return</b>                                                                              | \$             | \$             | \$             | \$             | \$             | \$    |

**Total Return: \$**

**Total Return on Investment: \$**  
(Total Return minus Total Investment)



# 1993 ESPRIT Award Winners

## *AT&T Universal Card Services*

Marian Browne, *Vice President,  
Customer Relationships*

Leslie Palmer, *Vice President,  
Emerging Technologies*

## *City of Chicago, Bureau of Parking*

Judith Rice, *City Parking Administrator,  
Bureau of Parking*

Paul Vallas, *Director of Revenue,  
Department of Revenue*

## *Complete Health Services Inc.*

William W. Featheringill, *President & CEO*  
Richard Harley, *Director of MIS*

## *Los Angeles County, Department of Public Social Services*

Ray Garcia, *Bureau Director,  
Bureau of Administrative Services*

Lisa Nunez, *Division Chief,  
Computer Services Division*

## *South Florida Water Management District*

John Lynch, *Department Director,  
Information Systems*

James D. Yager, *Assistant Executive Director*

## *SynOptics Communications Inc.*

John Dick, *Chief Information Officer*  
William J. Ruehle, *Vice President & CFO*

*ESPRIT Awards sponsored by*



THE MAGAZINE FOR INFORMATION EXECUTIVES

*and*

BOOZ-ALLEN & HAMILTON

# TRENDLINES

saquah with a first-rate technology infrastructure but would provide students with IT development experience that could prove invaluable in later life.

So, enlisting the help of local businesses and technology vendors, Bookey set about bringing Issaquah into the information age. Students participating in the district's Technology Improvement Project (TIP) assumed apprentice roles to teachers, administrators, and community and business volunteers. TIP participants began by surveying Issaquah's technology resources, analyzing the district's needs and then outlining specifications for the project. In the end, the network was built almost entirely—and is still maintained—by students under the age of 17.

Five years ago the district's classrooms didn't even have telephone lines; today they are being used as beta sites for companies like Microsoft Corp. and 3Com Corp. More importantly, Issaquah students have been able to use the network for everything from accessing library materials located across town to communicating with electronic pen pals around the world. And a number of students who gained IT experience working on the project have already landed jobs in the field or started their own companies.

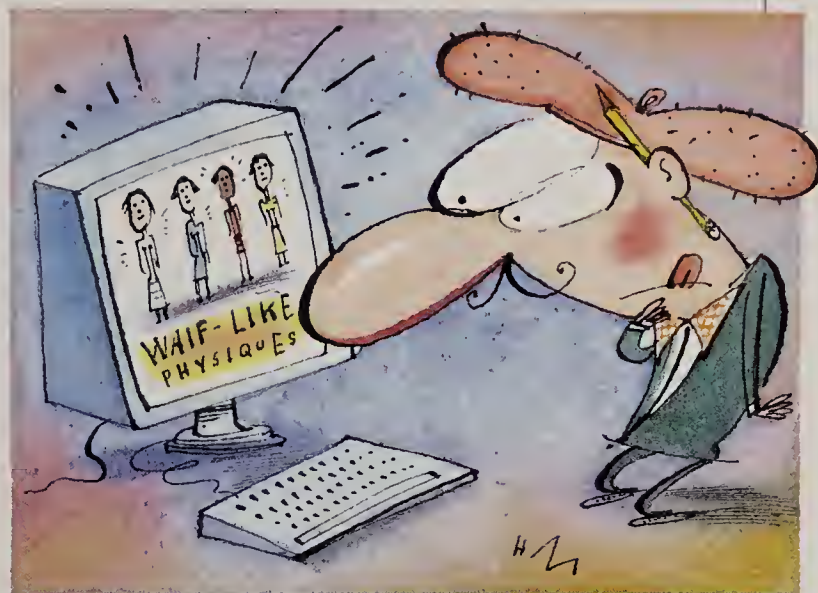
Other states and school systems are replicating the Issaquah experiment with the aid of the nonprofit Curriculum Improvement Foundation, of which Bookey is a board member. The goal, ultimately, is to make the electronic village for learning a national community, created by and for its students. ■

## RUNWAY SYSTEMS

**B**eauty is beauty, even when it's only screen deep. That's why modeling agencies are switching from 8 x 10 glossies to electronic-image transmission as a means of keeping their stables of human perfection in the eyes of their customers.

Ford Models Inc. of New York is leading the way, with an online database put together by Instant Exposure Inc. and Durand Communications. After scanning the portfolios of its thousands of models into the system, the company will provide clients with online access to high-resolution images of the models, as well as such information as age and talents.

For example, clients can request portfolios of red-headed men with beards or



tall blondes who can water-ski and within 10 seconds receive a list of Ford models who fit the bill. They can then view additional information—including photos—of the most-likely candidates.

With paper portfolios, only a limited number of people could review a model's qualifications simultaneously, and

photos sent through the mail were sometimes stolen or lost. Now thousands of clients anywhere in the world will be able to review the same portfolio. "Every modeling agency is going to have to have something like this if it wants to compete," says Craig Wirths, a vice president at Durand. ■

## STILL TO COME...

**I**t's still early enough in the year to entertain predictions on the shape of information technology in 1994. Here, then, are the tea leaves as read by Positive Support Review Inc., a management-consulting company in Santa Monica, Calif.

■ The only thing going on with the information highway this year will be a lot of talk. The project will go the same way as the superconducting supercollider. But the fuss will continue as the administration exploits the highway as a campaign issue.

■ Apple Computer Inc. will resurge—if it learns how to deal with Newton. The next generation of Newtons must provide the workstation of the future, with built-in communica-

tions, voice-mail, E-mail, word-processing and spreadsheet capabilities—all for under \$500. If Apple doesn't do it, another vendor will.

■ At least one vendor—probably a small one—will introduce a system that ties a Unix-based voice-mail system with a multimedia E-mail system, allowing users to attach voice and data and forward them across a network.

■ With the continuing advance of new tools, the need for computer-aided software engi-

neering will be eliminated. Companies with a large investment in CASE will be out of luck.

■ Reengineering will die a graceful death this year. Once an approach is talked about as the solution to all management problems, its time has passed. ■





# TRENDLINES

## GEOGRAPHIC INFORMATION SYSTEMS

### LESS RISKY BUSINESS

**R**isk is the insurance industry's lifeblood, but some risks are riskier than others. And with flooding, blizzards and a hurricane causing record-breaking financial losses for the industry over the past 18 months, insurers are increasingly turning to catastrophe-man-

agement systems as a means of limiting their own risks.

These systems, which marry mapping software with traditional risk-exposure databases, enable users to explore precise what-if questions about the company's exposure before, during and after a disaster.

"When one hurricane—in this case, Andrew—erases 34 years' worth of premiums collected by insurance companies from the entire state of Florida, it becomes imperative to integrate advanced catastrophe-management technologies into core business operations," says Thomas Clift, assistant vice president for Continental In-

urance of New York. Continental recently partnered with Strategic Mapping Inc., a geographic information system (GIS) manufacturer based in Santa Clara, Calif., to develop CatMan. The product, which was rolled out in December, is linked to real-time weather information that allows employees to track the location and severity of virtually any type of natural disaster. CatMan also tracks the amount of insurance written in a given area, enabling Continental to take steps to cut down exposure when its client base in a vul-

nerable area—close to a fault line, say—grows too large.

The company is also "geocoding" all its properties by longitude and latitude and storing the information in handheld computers. Claims adjusters can use that data to find their customers in areas "where the street signs have been blown away and you can't read the numbers on the houses anymore," says Clift.

ITT Hartford Insurance of Hartford, Conn., meanwhile, is using a desktop mapping product from MapInfo Corp. of Troy, N.Y., to perform similar functions. "When Andrew hit Florida, [the MapInfo product] helped us quickly predict what

the storm was going to cost us," says Gary Good, associate director of actuarial automation. The company defined buffers around the storm zone and estimated the damage within those buffers. "Within a 10-mile radius, say, the damage factor was 95 percent" of what the company insures, Good explains. "The product would come back and tell you how much business you had in that 10-mile buffer. Then you go back 20 miles and maybe the damage is 80 percent, and so on."

Good says that without the GIS, it would take days to do these kinds of estimates. Now it takes only two or three hours.

ITT Hartford also uses the product to evaluate its pricing policies. For example, it might establish rates for earthquake insurance by creating damage zones around a fault line on the map. "As

you get closer to the fault you pay more, and as you get farther away you pay less," says Good. ■

## NEW VENTURES

**E**lectronic Data Systems, France Telecom Intelmatique and US WEST Marketing Resources are joining forces to bring interactive financial-transaction services into homes and businesses. Beginning in April, Interactive Transaction Partners (ITP) will offer home banking, bill payment and bill presentment to financial institutions, retailers and major billers, which can remarket the services to customers under their own private labels.

For more information call 201 916-5050.

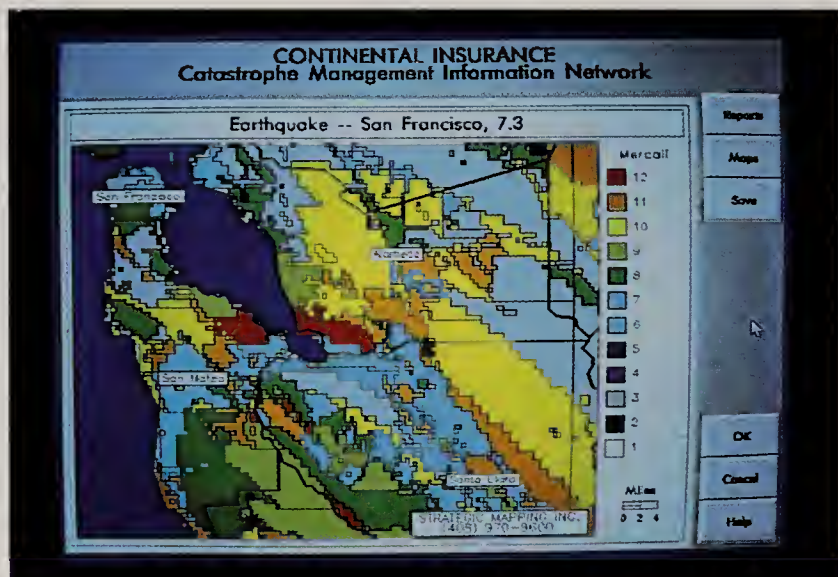
Two benchmarking groups offer specialized focuses for

## NEWS YOU CAN'T LOSE

**O**ne of the sweetest sounds corporate executives can wake up to is the thud of *The Wall Street Journal* landing on the doorstep. Now executives can bring their doorsteps with them when they travel, in the form of Dow Jones & Co. Inc.'s new *Personal Journal*.

*Personal Journal* is an electronic publication that delivers top business and financial news, stock quotations, sports and weather 24 hours a day to mobile business professionals. The information is delivered over handheld computers running Microsoft At Work software: Users plug their machines into a telephone jack, and the software automatically dials an 800 number and downloads the most-current news. Subscribers receive updated stories from that morning's *Wall Street Journal*, or they can create a personal profile to follow news, stock quotes and companies of special interest. The information is divided into daily pages and sections, and the service is priced comparably to a daily newspaper.

For more information call 609 520-4638. ■







# The Navy Brought Us Aboard!

*And so did 40 of the  
FORTUNE Top 50.*

The diversity among the world's largest companies belies a common concern that led 40 of them to *one* company . . . for one reason — unique connectivity solutions that leverage a most important asset: information.

## *Glasnost For The Glass House.*

These companies recognized the value of information early on. They invested in IBM mainframes and SNA environments at headquarters and later built TCP/IP LANs to link other locations. As a result, they created huge repositories of information in their home offices, nimble networks in the field — and a frustrating inability to connect the two. Which is why they connected with us.

## *Access. Synthesis. Interoperability.*

Our technology transforms these separate networks into seamless systems. So users the world over can easily access information in the mainframe, in a form synthesized to look like what they're used to. Which means they can actually *use* the information — massage it, manipulate it, integrate it — without compromising the integrity of your corporate database or your control over it!

## *Open Your World Without Closing Your Options.*

Others debate standards, we deliver benefits. So if disparate systems have you looking at open systems, look to us . . . and enjoy the ultimate management option: to embrace new technology *without* risking past investments!

**To Learn More, Call Now.  
(214) 484-5200.**

OpenConnect Systems  
2711 LBJ Freeway  
Dallas, TX 75234

# OPENCONNECT

S Y S T E M S

*Transforming Separate Networks Into Seamless Systems.*



# TRENDLINES

managers pursuing best practices. DuWayne Peterson, former CIO of Merrill Lynch and Securities Pacific Automation Co., has formed a benchmarking consortium exclusively for the IS departments of banks and financial organizations. The group can be contacted by calling 818 577-9419. Real

Decisions Corp. has created its second best-practices group for benchmarking data-center processes. The group is co-sponsored by McDonald's Corp., and is composed of members of Real Decisions' Decision Support Center program. For information call 203 656-1500. ■

## WAR AND REMEMBRANCE

**T**echnology is a gateway not only to the future but also to the past. At the Simon Wiesenthal Center's Beit Hashoah Museum of Tolerance in Los Angeles, technology serves as teacher, archivist and conjurer, creating vivid impressions of this century's greatest shame.

The museum deals not only with the Holocaust but with all facets of racism, religious persecution and rampant nationalism, up to and including the ethnic cleansing taking place in the former Yugoslavia. But unlike the traditional history-behind-glass approach, the museum is largely hands-on, exposing visitors to the sights and sounds of the Holocaust and allowing them to thread their own paths through hate's convoluted corridors. In an 8,400-square-foot Multimedia Learning Center, visitors sitting at touch-screen-equipped, interactive workstations can drill down through eight main topics, including "Military Strategies of World War II" and "Antisemitism and the Final So-

lution." A database of over 50,000 photographs, archival film footage, sound clips from BBC reports and Nazi propaganda, and 14 hours of videotaped interviews with Holocaust survivors and liberators is easily accessible.

Before the release of his film *Schindler's List*, director Steven Spielberg visited the museum and was so moved that he donated half a million dollars to the Wiesenthal Center. ■

## OFF THE SHELF

### BALANCING ACT

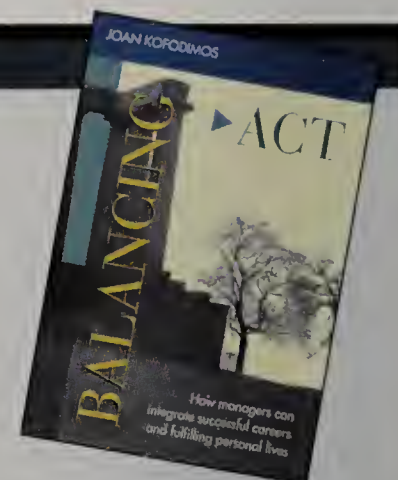
**HOW MANAGERS CAN INTEGRATE SUCCESSFUL CAREERS AND FULFILLING PERSONAL LIVES**

**By Joan Kofodimos**  
**Jossey-Bass Publishers**  
**(San Francisco), 1993**  
**167 pages, \$25.95 (hard-cover)**

**T**he balancing act in Joan Kofodimos's book is the modern-day equivalent of trying to serve God and mammon: How do you give your all to an employer and still have something left for your loved ones back in the nest? Written for managers and executives, *Balancing Act* argues that, yes, there are enough hours in the day, and no, you don't have to sacrifice a fulfilling personal life to maintain a successful career.

In fact, a satisfying personal life may well be the key to that successful career. The author's research demonstrates that employees who lead well-rounded lives are more productive than their blinkered counterparts. Happy employees are also less likely to feel the effects of long-term stress, such as fatigue and life-threatening illnesses. Kofodimos leads readers through a personal analysis to determine whether their current lifestyles are serving their goals, beliefs and values. She then sets out to help the less-than-perfectly balanced set new priorities and redirect their lives.

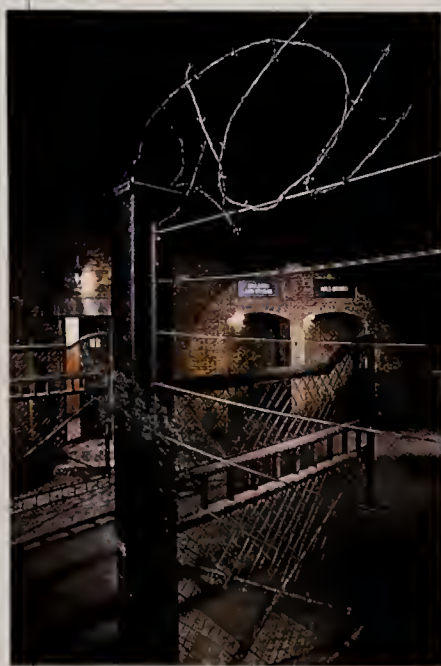
In defining the nature of



imbalance, the author focuses on two aspects of human character. The mastery-oriented part emphasizes logic and rationality, upholds high standards, enjoys being in charge and values individualism and autonomy. The intimacy-oriented part, conversely, is solicitous of others' feelings, tolerant of weaknesses and enjoys personal interaction. Integrating the two, Kofodimos argues, is the secret to living a balanced life.

Predictably, many managers and executives are excessively mastery-oriented. Traditional hierarchical organizations encourage this imbalance. And that ends up costing both the employee and the organization. This tendency is manifest in the seven subjects of the *Fortune* article "America's Toughest Bosses" (Oct. 18, 1993); perceived as strong leaders, their extreme need for mastery adversely affects their employees.

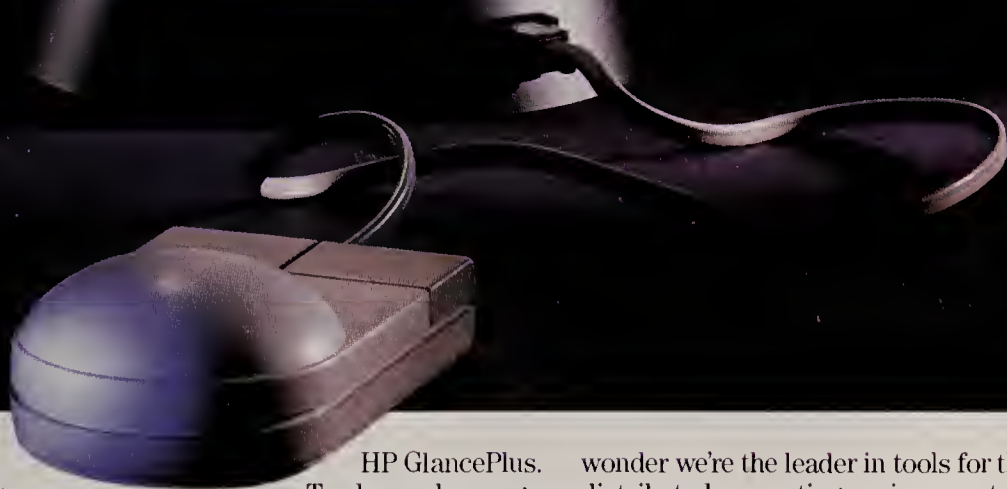
Kofodimos's point is well-taken. Great leaders recognize and accommodate the imperfect, diverse and multifaceted lives of their followers. But first, they must recognize and accommodate the many conflicting, yet enriching, forces in their own lives. ■



*The gates of Auschwitz*



Who says distributed environments are unpredictable?



**HP's performance management tools show you the future in time to change it.**

Today, the way to manage your systems can be crystal clear. Thanks to the vision provided by our performance and resource management tools. Giving you the kind of control previously available only in mainframe environments.

Our robust family of products provides everything from top-down enterprise overviews using HP PerfView to nitty-gritty system diagnostics with

HP GlancePlus.

To plan and manage your resources, we offer HP PerfRX and HP Performance Collection Software.

Working together, they help you increase user productivity and maximize system utilization. While reducing management costs. You'll be able to see problems in time to avoid them. Even future needs become predictable.

HP has long played a prominent role in Open Systems management. With HP OpenView, we showed the way to manage integrated networks. So it's no

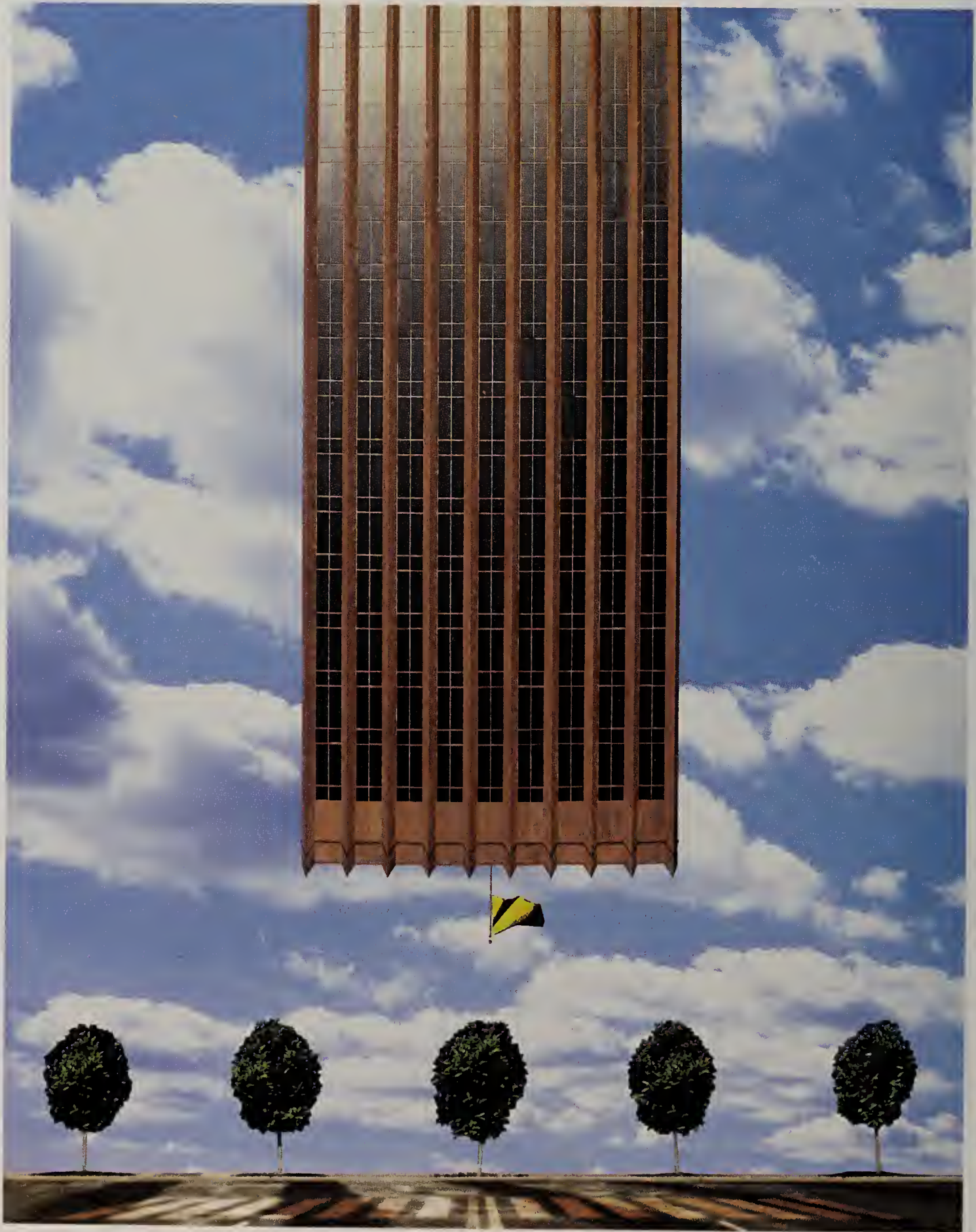
wonder we're the leader in tools for the distributed computing environment.

To see more, call 1-800-237-3990, Ext. 2825 for our free video. The future will look much brighter when you look at it with us. **The performance management leader for the distributed age.**



**HEWLETT®  
PACKARD**





# RESTRUCTURING DOESN'T ALWAYS TURN OUT LIKE YOU PLANNED.

**Downsizing. Rightsizing. Restructuring.**

To compete today, your company has to be as productive as humanly possible. You need to change the way you do business. In a way that doesn't put you out of business.

Enter Action Technologies. A comprehensive, low risk approach to reengineering business processes. Our ActionWorkflow<sup>®</sup> System is a suite of software that analyzes how you do business now, then implements the necessary improvements. Our patented approach tracks the interaction of people, not just the movement of paper. You see beyond the flow of information to the commitments people make. Suddenly, all kinds of possibilities appear. And your business becomes incredibly efficient. We also offer something rare in a world that prizes technology above all else. People. Our worldwide network of business partners will help analyze your specific issues and tailor our technology to fit your needs. Is it really possible to fundamentally change your business processes without risking your business? We think so. We've proven it to one of the big three car makers, a leading computer company and an international advertising agency, among others.

We'd like to prove it to you. Call us at 1-800-WORKFLOW.



**RE INVENT YOUR COMPANY WITHOUT RISKING IT.**





# Who's on First

One of the most important games managers play involves prioritizing IS project proposals. Though playing dirty may be part of the fun, it's time to consider improving the process.

BY IDO MILLET

While there is no standard technique for ranking IS project proposals, the challenge is clear. Managers must evaluate proposals on a variety of tangible and intangible factors; they must identify and weigh these factors to reflect organizational priorities; and, ideally, the process should be easy to explain and defend so that recommendations are adopted and politics tamed.

By selecting the best development projects, CIOs can leverage limited resources to the organization's greatest advantage. Furthermore, the ranking process itself can be used to improve communication with user departments and top executives. Unfortunately, most companies rely on methods that leave a great deal to be desired.

One typical problem is lack of attention to intangible benefits and organizational goals. Cost-benefit analyses, for example, focus too much on financial measures. Executives often sense that the analysis is not com-

plete and so tend to rely on it less. A CEO of a Northeastern insurance company recently overturned a negative recommendation about a project aimed at better serving insurance agents; although the cost-benefit analysis was unfavorable, the CEO voted the project in anyway because it fit the business strategy.

Another typical problem is lack of structure. In many organizations, the ranking process is conducted in a fog: Reams of pages and hours of presentations are hashed over by a committee until a prioritized list magically emerges. In these situations, user departments will not understand or trust the process. Similarly, the steering committee will find it difficult to justify and defend its own recommendations.

In this haze of misunderstanding and mistrust, politics thrive. Managers may push for projects catering to their own departments and pet ideas, particularly if development costs are not charged to user departments. Similarly, IS managers may be guilty of promoting large-scale, high-technology projects for the excitement, resources, job security and resume enhancement they provide. Executives, meanwhile, may enjoy participating in the game simply to exercise their power and collect IOUs from other managers.

As a partial remedy, many organizations use scoring techniques that combine evaluations on multiple criteria into a final tally. For example, a scale of 1 to 5 may be used to evaluate project proposals on two criteria: financial performance and contribution to quality. These may be given weights of 100 and 50 points, respectively, indicating that financial performance is considered twice as important as contribution to quality. A project that scores a 2 on the first criterion and a 4 on the second, then,





# CIO

THE MAGAZINE FOR INFORMATION EXECUTIVES

CONFERENCE SUPPLEMENT  
TO CIO MAGAZINE



THE CIO PERSPECTIVES<sup>SM</sup> SERIES

## Re-Visioning IT: Achieving an Enterprise Perspective

MARCH 13-16, 1994  
HYATT GRAND CYPRESS  
ORLANDO, FLORIDA

*Featuring*

**TOM PETERS**

Masters of Tomorrow  
*and*

A Global Visionary Perspective  
The New IT Professional  
The New Frontier  
IT & Healthcare Reform  
Immutable Marketing Laws  
Mental Toughness  
...and more





# CIO

## CONFERENCE SUPPLEMENT

### ■ Conference Overview

Joe Levy and Lynda Rosenthal

### ■ High Anxiety, Higher Stakes and Loftier Visions

An article about the changing role of the CIO.

### ■ Agenda

Annotated information about each session and networking activities.

### ■ Companion Program

Companions join participants for conference receptions, meals and entertainment.

### ■ Grand Cypress Resort

One of Hyatt Hotel's top resorts, plus a tennis tournament featuring Vitas Gerulaitis.

### ■ Conference Hosts

Select industry solution providers will display key technologies.

### ■ Enrollment Form

Complete it now to ensure your enrollment!

### ■ To enroll...

Call 800-366-0246 now!

## Conference Overview

Future successful CIOs must achieve a new understanding and a different outlook on their businesses...an enterprise perspective. CIOs must master business and industry concepts and evolve into business-based strategists. Whether you have already begun this transformation or need to begin, you will want to attend this program.

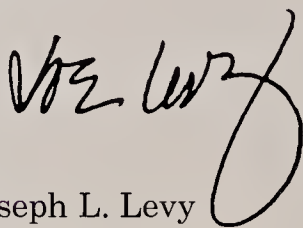
**Re-Visioning IT: Achieving an Enterprise Perspective**, the tenth program in our CIO Perspectives series, focuses on re-inventing IT and re-adjusting its role in the enterprise. As Megan Santosus, staff writer, notes in the following article, "The position of CIO...today is absolutely precarious." The agenda features distinguished speakers in rare public appearances, outstanding technology product and service providers and senior executives who will address the turmoil within the IT profession.

As keynote speaker Tom Peters states, "Adjust or else. Fifty percent of the Fortune 500 companies of 1980 bit the dust in the subsequent decade. The trick is turning front-line employees into experts and finding other routes to honor expertise without creating cumbersome staff structures that gum up the works. Learning to be more expert than ever in non-bureaucratic ways is a tough puzzle to solve. Yet no task is more important to tomorrow's managers."

If you sense the turmoil and seek a new outlook on your business and your profession, join us March 13-16 at Grand Cypress Resort in Orlando, Florida. In general and concurrent sessions...informal peer-to-peer gatherings...during meals and planned activities...you will talk with other executives, with innovators, leaders and visionaries about strategies for re-visioning information technology. Our corporate hosts will provide a wide selection of concurrent sessions on specific applications and industry trends. Each session will be offered twice, so you can attend up to four sessions.

Complete the enrollment form on the back cover and fax it to us at (508) 879-7720. Or call us at (800) 366-0246 and we'll be happy to take your information directly. See you in Orlando!

Regards,



Joseph L. Levy  
President & Publisher  
CIO Publishing, Inc.



Lynda Rosenthal  
Vice President & General Manager  
Executive Programs  
CIO Publishing, Inc.



# HIGH ANXIETY, HIGHER STAKES AND LOFTIER VISIONS



BY MEGAN SANTOSUS

If there's one inescapable fact of life for many companies operating in today's global economy, it's that the stakes of doing business have never been higher. The potential rewards of success seem to be outnumbered only by the risks: Pitfalls capable of inflicting serious damage to even the most well-managed organizations are more numerous and varied than ever before. For organizations hoping to survive, let alone prosper, change — in terms of strategies, markets and top management — has become the order of the day.

Unfortunately for many CIOs, organizational change has come at the expense of their jobs. The position of CIO has always been somewhat insecure, but today it is absolutely precarious. As turnover rates among the top IS ranks continue to rise, one message is coming through loud and clear: CIOs must learn to revision IT in support of changing organizational imperatives or their days are numbered. Al Ries, chairman of consultancy Trout & Ries in Greenwich, Conn., has a succinct assessment of the situation. "The biggest problem faced by the CIOs of today," he says, "is not the vision of IT, but the vision of the enterprise." In Ries' opinion, too many companies are being swept up in the hype over converging technologies such as computing, telecommunications and consumer electronics. It is the job of the CIO to steer CEOs away from focusing on technology fads, and instead concentrate on the rational use of information.

In order to do this, CIOs have to get beyond looking at technology as the centerpiece of their jobs. Revisioning IT can only be successful once CIOs get a firm grounding in the day-to-day operations of the enterprise. Achieving this daunting task will in turn require mastering a wide range of skills and developing broad-based knowledge of every aspect of an organization including research and development, sales and marketing, manufacturing and accounting.



**The position of CIO has always been somewhat insecure, but today it is absolutely precarious.**



**The biggest problem faced by the CIOs of today is not the vision of IT, but the vision of the enterprise."**

■ Al Ries

In addition to fostering internal partnerships, many CIOs will find it increasingly necessary to leverage the expertise of external organizations by striking alliances with vendors and suppliers. Some CIOs may even have to contend with forming cooperative relationships with organizations that operate in the same competitive arena. In the course of balancing all these responsibilities, CIOs must pay particular attention to training and developing members of their internal IT staffs.

If all of this seems overwhelming and perhaps somewhat frightening, it's little wonder. The thought of tackling even minor changes can be tumultuous; feeling uneasy at the prospect of making major revisions that can affect every aspect of a career is certainly understandable. On the other hand, management guru Tom Peters believes that it is dangerous not to be perplexed and confused during this period of dramatic transformation. And Professor Robert J. Benson offers a comforting thought to those who may feel as if they are being pushed into uncharted territory. As he sees it, CIOs can best position themselves for success in the future by adopting the can-do attitude of the past.

"Thirty years ago, the vision of IT for the business was to develop solutions linked directly to work," says Benson, who is the associate vice chancellor of computing and communications at Washington University in St. Louis and the conference moderator. "IT people were primarily involved with figuring out how to organize work using automation." For example, IT used to be instrumental in conducting work flow studies and charting. "As people throughout the enterprise have

become more IT knowledgeable in general, many of those in IT have adopted a defensive posture."

This attitude, which Benson likens to a siege mentality, has resulted in part because CIOs are cautious and feel threatened. "Risk taking was very much a '60s attitude," he explains. "Today, a lot of IT people have lost faith in their ability to contribute to the enterprise. Because there are no barriers preventing IT knowledge from spreading throughout an enterprise, [CIOs] have to accept the fact that they are out of the business of implementing solutions by themselves."

Instead, CIOs must recast themselves in the roles of facilitators, partners and enablers. "The opportunity for CIOs and the IT department is to strike a relationship with the rest of the enterprise in order to find a common cause and then to apply a systems solution." In many cases, achieving this will require a different way of implementing technology.

Charles H. Mayer, the managing director and CIO at worldwide investment-banking concern CS First Boston in New York, is currently in the midst of a large scale downsizing project that has called for a visionary approach. In an effort to reduce costs, improve departmental management capabilities and increase integration with front-end office functions, the IT group is overseeing a move to client/server computing. The visionary part, according to Mayer, is that First Boston aims to totally eliminate its mainframe.

**CIOs can best position themselves for success in the future by adopting the can-do attitude of the past."**

■ Bob Benson

"Most people feel that downsizing involves migrating to client/server but still keeping legacy systems on the mainframe," he explains. At First Boston, Mayer and his staff have found that the main reasons often cited for keeping the mainframe up and running are not etched in stone. "The costs of rewriting mainframe applications are not as much as most people think," he states.

A couple of large steps still must be accomplished before the move is complete, and Mayer concedes that the benefits of the project remain to be proven. Yet by looking at the project from an enterprisewide perspective and taking a creative approach to implementing an IT solution, Mayer has exemplified the kind of risk-taking attitude and connection to work that Benson advocates.

As technology continues to change at a rapid pace and infiltrate every level of an organization, CIOs have a unique opportunity to make significant contributions to their enterprises. Revisioning IT however, will require CIOs to expand their horizon of knowledge to new levels.

"The bottom line is leadership," asserts Benson. "The revisioning of IT will center around the themes of connectivity, relationships, integration and partnerships. It's going to take leadership on the part of the CIO to make sure that the implementation of technology succeeds in pushing the enterprise forward."

## Extinction Prevention

**Tom Peters offers advice on managing constant change**

Successfully reinventing the organization in an effort to cope with today's level of constant change is the theme of Tom Peters' latest tome, *Liberation Management: Necessary Disorganization for the Nanosecond Nineties*. After analyzing details gathered from more than 70 case studies, Peters concludes that executives and front-line employees alike who "treat change as an ally rather than an enemy will thrive. Others who don't will be in for a rough ride."

In the brave new world that Peters foresees, middle managers and their staffs will go the way of the dinosaurs. Organizations will replace hierarchical, "pyramid" structures with much smaller entrepreneurial and dynamic groups that in turn can work closely with small groups of targeted customers. For companies and individuals struggling with changing imperatives, Peters offers the imaginative solutions of such organizations as CNN, Union Pacific Railroad, The Body Shop and Titeflex. Some of his main conclusions are listed below.

- Individuals must learn to take the initiative, continue to re-educate themselves in new skills, and expand their number of personal contacts by networking outside their own organizations.
- Companies must be prepared to give all levels of employees the autonomy to take the initiative and make decisions without strict supervision.
- Large organizations must continue to voluntarily "dismember" themselves into small groups.
- Internal staff service units — including training, accounting and information systems — must be tested in the marketplace in order to benchmark both cost-effectiveness and innovation against outside firms.

In the end, survival comes down to market intelligence, or the information gathered about customer wants. "The creators and purveyors of such intangible knowledge," says Peters, "...are the most valuable players in yesterday's and, especially, tomorrow's economy."



CIO Perspectives Series

# Re-Visioning IT: Achieving an Enterprise Perspective



MARCH 13-16, 1994

HYATT GRAND CYPRESS

ORLANDO, FLORIDA

## AGENDA

### SUNDAY, MARCH 13

3-6:00pm

**Conference Registration**

7-9:00pm

**Welcome Reception**

### MONDAY, MARCH 14

7-8:00am

**Breakfast**

8-8:05am

**Welcome & Opening Remarks**

**Joseph L. Levy**  
President & Publisher  
CIO Publishing, Inc.

8:05-9:00am

**Re-Visioning IT: The Enterprise  
Perspective**



*Conference Moderator*  
**Robert J. Benson**  
Associate Vice  
Chancellor of Computing  
& Communications  
Professor of Information  
Management  
Washington University  
St. Louis, Missouri

At the same time enterprises are being re-invented and re-engineered, IT executives must re-invent their vision for IT. The need for a new vision...not just new technology...calls for a fundamental restatement of IT's very nature from the enterprise and business perspective. IT managers must enable the enterprise to reach its re-invention and reengineering goals. This session, which sets the theme for the conference, will explore what re-visioning IT is all about...not business as usual...rather re-inventing and rethinking how IT is integral to the enterprise.

9-9:45am

**Achieving Customer Intimacy**



**John Biggs**  
Head  
Hyatt Technical Center  
Hyatt Hotel Corporation

The customers of today's technology products want to feel that their

technology providers are intimately aware of their business needs so that the merging of old and new technologies will keep them competitive in the marketplace. This session will address the issue of customer intimacy; how companies can cooperate to attain it; and how companies will have to rethink the development of increasingly limited IT resources in the future.

9:45-10:15am

**Coffee Break**

10:15-11:00am

**The Emergence of the New IT  
Professional**



**Sharon Heldorfer**  
Vice President  
Field Operations  
Property & Casualty  
Claims Division  
The CIGNA Companies

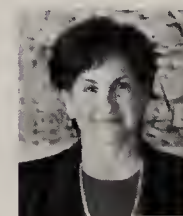
Success in CIGNA's radically reengineered IS environment demands different skill sets and knowledge than those of a decade ago, resulting in the emergence of a new type of information technologist. This session will focus on the forces leading to that change: the skills required to succeed in this new business environment; the change in mind-set needed by IS professionals and system users; and strategies for effective multidisciplinary business/IS teams.

11am-12:15pm

**A Global Visionary Perspective**

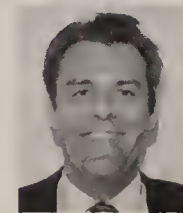
*Panel Discussion  
Moderated by*

**Marcia Blumenthal**  
Editor-in-Chief  
CIO Magazine



*Panelists:*

**Ken Harris**  
Vice President  
Worldwide Information  
Systems  
Kentucky Fried Chicken



**Bob L. Martin**  
President & CEO  
Wal-Mart International  
A Division of  
Wal-Mart Stores Inc.



One of the most important strategic mandates today is competing in a global marketplace. The world is becoming a much smaller community and trading in international markets is a critical success factor for many enterprises. Our panelists will provide insights into how they have expanded the boundaries of their organizations to compete globally. They will explain the role IT plays in creating global market capabilities and the lessons learned from participating in this process. In a panel discussion and question and answer session following the presentation, conference attendees will have an opportunity to engage these executives in a dialogue.

12:15-1:30pm  
**Luncheon**

1:30-6:30pm  
**Networking & Recreation**

**Golf Tournament**

**Tennis Clinic & Round Robin**  
*with Vitas Gerulitas*  
*Hosted by Computer Associates*

6:45-7:30pm  
**Reception**

7:30-10:00pm  
**Dinner, Entertainment & Tournament Awards Ceremony**  
*with Vitas Gerulitas*

**TUESDAY, MARCH 15**

7-8:00am  
**Breakfast**

8-8:45am  
**The New Frontier**



**Ralph Szygenda**  
Vice President & CIO  
Bell Atlantic Corporation

Tremendous changes are occurring in the telecommunications industry today. The merging of telephony, cable television, video programming and interactive services is radically changing the role of the telecommunications provider. This merger will offer the consumer a new frontier of services that will change their daily lives; Bell Atlantic has and will continue to change in order to thrive in this new environment. The impact of the new frontier on Bell Atlantic will be corporate wide, demanding a need for change in its processes, infrastructure, organizations and information systems. World class processes and information technology are a must to meet these new business requirements.

8:45-9:30am  
**A Visionary Perspective on Systems Downsizing**



**Charles H. Mayer**  
Managing Director & CIO  
CS First Boston

Although downsizing is a popular buzzword, many organizations have not fully embraced the strategy. CS First Boston, an international investment banking firm, is in the process of downsizing IT operations from a mainframe environment to a distributed computing environment based on open systems. This session will explore the benefits, as well as the personnel, technology and corporate issues that can be obstacles for organizations "diving in" to mainframe downsizing.

9:30-10:15am

**Achieving Balance in Your Corporate Portfolio: An Interview with Hal Rosenbluth**



**Hal Rosenbluth**  
President & CEO  
Rosenbluth International

During his discussion with Bob Benson, Hal Rosenbluth will focus on the benefits of a people-first management style and will demonstrate the Rosenbluth philosophy that a company's people are its greatest assets. He will discuss unusual hiring practices; training programs; associate satisfaction measurement systems; company culture and technology as a tool, from a people-first perspective.

10:15-10:45am  
**Coffee Break**

10:45-11:30am  
**Concurrent Sessions**

**Operating Networks in the Global Marketplace: Are You Ready?**

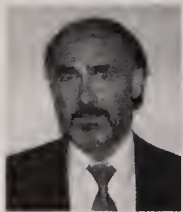


**John Pientka**  
Vice President  
Enterprise Solutions  
Syncordia Corporation

New opportunities abound for companies operating in the global marketplace. But how do you make sure your network supports your global strategy? How do you plan for and deploy a global network? Do you have the skills to operate a network of this scale? A variety of solutions is at your disposal, but choices are difficult. This session will provide a useful framework for examining your situation, analyzing your options and making a plan.



### Improving Customer Satisfaction through Wireless Technology



**Frank Pensiero**  
Manager  
System Development  
Pitney Bowes, Inc.  
*This session courtesy  
of ARDIS*

Pitney Bowes is a pioneer in field service automation. In 1990, the company decided to migrate to wireless technology to improve service reps' productivity and responsiveness and achieved both cost savings and increased customer satisfaction. This session will provide an overview of Pitney Bowes' wireless solution to customer service as well as a discussion on interfacing multiple types of wireless and wireline networks.

### Large Scale Client/Server Development Using Information Engineering



**Dennis Minium**  
Director of Technology  
& Methodology  
Information Engineering  
Facility  
Texas Instruments

Client/server computing is more than building pleasing interfaces to remote data. Business process support, application migration, software distribution and technology mobility are but a few of the peripheral issues that must be addressed in order for a client/server environment to yield its promised benefits. This session will examine the benefits and challenges of building a computing environment that can serve the needs of both the individual department and the corporation as a whole.

### Videoconferencing for the Global Enterprise



**Alan Guibord**  
Director of MIS  
PictureTel Corporation

By allowing teams and individuals worldwide to work spontaneously and interactively without barriers of time and distance, videoconferencing enables companies to leapfrog their competition by delivering products to market faster and providing better customer support. This session will provide real life experiences and insights into how successful CIOs are using videoconferencing in their organizations to improve their competitive positions in the global market.

### Client/Server: Adolescence to Adulthood



**Mark Leary**  
Research Director  
Telecommunications  
and Networking  
IDC/Technology  
Investment Strategies

Now that client/server has moved from the backroom to the boardroom, organizations are taking a harder look at not only the reasons and requirements for client/server, but also the results. This session will detail the "lessons learned," drawn from IDC research into early adopter systems; highlight pivotal information technologies, vendors and products; and outline strategies aimed at "maturing" the selection, use and management of client/server systems designed to take your organization into the next century.

### Automated Enterprise Management



**Jack Reis**  
President  
MAXM Systems  
Corporation

Automated Enterprise Management (AEM) is emerging as a distinct market segment because effective network, data processing and distributed systems resource management have become the most critically important issues in the information processing industry today. Jack Reis will address the driving forces behind the emergence of AEM; the state of the art in AEM technologies; case studies of early AEM adopters; and the benefits to be derived from effective AEM implementation.

### Developing A Plan for Client/Server Architecture

*Panel Discussion  
Moderated by*

**Thanos M. Triant**  
Director  
Systems Architecture  
Sun Microsystems  
Computer Corporation



*Panelists:*

**Sheri Anderson**  
Vice President  
Charles Schwab &  
Company

**Jeff Martignon**  
Chief Client/Server  
Architect  
Kellogg Company

Every large IT department is required to complete an architectural plan for its enterprise. With more firms using IT as a competitive advantage and needing to support a growing infrastructure of heterogeneous platforms and distributed applications, building a plan for client/server architecture becomes more critical to the success of the firm. Sun will host a panel who will address the issues to consider when developing an architectural IT plan.

## The Agile Enterprise: The Role of Technology



**Mike Galane**  
Senior Consultant  
Hewlett-Packard  
Company

In this period of tough economics and survivalist thinking, the role of strategy is changing. The premium is now on moving fast. More than ever the best strategies are irrelevant if they cannot be executed quickly. The successful organization of the future will be the agile organization. By using examples from Hewlett-Packard and client companies, Mike Galane will outline a methodology for combining the power of the new client/server open system technology with empowered work groups to create the agile organization.

## The Latest Trends in Open Systems Relational Database Technology



**Bob Macdonald**  
Vice President  
Corporate Marketing  
Informix Software, Inc.

In 1994, there are a lot of new capabilities coming to relational database technology under open systems. This session will cover the latest trends in RDBMS technology for UNIX and open systems and how your organization can benefit from them. Topics will include parallel processing, mainframe caliber administration, real-time decision support, multimedia data serving, heterogeneous connectivity and data replication.

11:45am-12:30pm

## Concurrent Sessions - Repeated

12:30-1:30pm

## Luncheon

1:30-2:15pm

## Concurrent Sessions

### The Role of Middleware in Enterprise Client/Server Computing



**Jon Deutsch**  
Technical Director  
Enterprise Data Access  
Division  
Information Builders,  
Inc.

Moving from the mainframe to a distributed computing architecture greatly increases the complexity of information processing. A new class of client/server software, middleware, is a strategic solution for an enterprise to share data among different applications, hardware systems, networks and database, and file structures, in the most cost-effective infrastructure. This session will discuss the criteria for choosing middleware and how to apply it in implementing a client/server solution.

### Moving from DOS to Windows in a Corporate Environment: A First Hand View



*Panel Discussion  
Moderated by*  
**Gordon Rapkin**  
Vice President, Product  
Management & Planning  
IMRS

Many companies today recognize that moving from a DOS environment to Windows provides a host of corporate-wide benefits; but moving mission-critical applications is not without its hardships. Anticipating difficulties and learning from other companies' mistakes can make the process much easier. IMRS, a software developer that offers both DOS and Windows financial management applications, will host a panel of key decision makers in a discussion of their experiences.

## Re-Inventing the CIO



**Phil Andrews**  
Principal  
EDS

Today's enterprises have shifted IT into high gear, looking to IT as a strategic weapon against global competitors and as a potent driver in transforming themselves. A new technology leadership role is emerging. For many, the new number one objective is to use IT strategically for a competitive edge in every aspect of performance. In this session, real-world reengineering examples will be used to illustrate what this means for the CIO, both personally and professionally.

## Leveraging IS Through High Growth



**H. Scott Barrett**  
Vice President  
Information Services  
Blockbuster  
Entertainment  
*This session courtesy of  
XcelleNet*

Since 1986, Blockbuster has grown from under 100 video stores to 3,407 entertainment stores, with nearly 1,000 of these outside of the US; the company opens a new store every day on average. Blockbuster has also diversified into music retailing, film production, outdoor amphitheaters and family entertainment centers, requiring systems that help these businesses work together to the company's advantage. Blockbuster has been able to sustain and leverage an IS infrastructure that can support a diversified range of entertainment businesses in the face of rapidly changing or embryonic technologies. Hear the key factors that have contributed to Blockbuster's IS success in "the race" to stay ahead, some of the mistakes made along the way, and the future of IS at Blockbuster Entertainment.



### The Global Corporate Control Center: What It Is and How It Will Change Your Job



**Bob Decker**  
Vice President  
Network Management  
Racal-Datacom, Inc.

Traditionally, control technology was purchased by individual departments, with each department having its own objectives, while technology was perceived as mutually exclusive. The challenge in re-visioning IT's role is to bring together diverse activities to achieve an enterprise perspective that will strengthen and focus corporate goals. This session will explore the issues so you can start charting your re-visioning course of action.

### Meeting the Knowledge Challenge – An Enterprise Perspective



**Jeri Nechleba**  
Senior Vice President,  
General Manager  
Nielsen Software &  
Systems

Taking data and information and turning it into knowledge is one of the most critical challenges facing IT today. This challenge is coupled with the difficulty of moving from flexible personal systems to flexible enterprise systems. This session reviews the issues and paths in creating flexible enterprise-wide knowledge systems.

### Re-Visioning the Enterprise: Are You Seeing Clearly?



**Christopher Disher**  
Principal  
Booz•Allen & Hamilton



**David MacBlane**  
Principal  
Booz•Allen & Hamilton

Re-visioning IT must go hand-in-hand with re-visioning the entire organization so that it treats IT as an equal participant in the success of the business. We've witnessed some stunning successes – and some debilitating failures. Share the results of a recent Booz•Allen survey on why re-visioning works better in some organizations than others. Participants will perform a self-diagnostic to find out if their organization is a good candidate for achieving an enterprise perspective or if danger lies ahead.

### Rules for Successfully Deploying Client/Server Applications for the Enterprise: Earl's Top Ten



**Earl Stahl**  
Vice President  
Desktop Products  
Gupta Corporation

Client/server software will play a key role in the ability of IS executives to rapidly improve the responsiveness of their corporate organizations. However, implementing successful client/server applications can be a more formidable task than planning for them. Gupta's vice president of development for desktop products proposes a clear set of rules to follow to ensure that client/server projects are "enterprise savvy," readily accepted by users and meeting the productivity gains expected of them.

### The CEO/CIO Disconnect



**Alan Paller**  
Head, Unix Strategies  
Computer Associates  
International Inc.

The "disconnect" between CEOs and CIOs has been widely experienced but rarely publicly examined. CEOs place partial blame for the lack of dialogue on CIO's use of technically complex languages, their penchant for promising more than they can deliver and on underestimating the challenges of IT implementations. This session

is a summary, with video clips and interviews, of a CEO conference on computer technology, where Fortune-1000 CEOs discussed what must be done to facilitate partnering with their CIOs.

2:30–3:15pm

### Concurrent Sessions – Repeated

3:15–3:30pm

### Coffee Break

3:30–5:30pm

### Masters of Tomorrow



**Thomas S. Peters**  
President  
Tom Peters Group

Change is today's constant, in any industry you can name. Product life cycles are rapidly shrinking. Jobs are turning into a series of short-term projects. Careers are becoming a portfolio of jobs in pursuit of personal growth, not a lifetime on one payroll. In this presentation, Peters suggests that those who learn to take the initiative, continue to re-educate themselves, work tirelessly on expanding their personal networks, treat change as an ally rather than an enemy...will thrive. Each participant will receive a copy of Tom's latest book, *Liberation Management: Necessary Disorganization for the Nanosecond Nineties*.

5:30–6:30pm

### Reception with Tom Peters



WEDNESDAY, MARCH 16

7-8:00am

**Breakfast**

8-8:45am

**Immutable Marketing Laws & the Vision Thing**



**Al Ries**  
Chairman  
Trout & Ries

Company after company is making the mistake of falling in love with hype and not reality—for instance, the hype of the coming convergence of computing, communications and consumer electronics. But technologies don't converge; they divide. No one is in a better position to deflate the convergence balloon than the CIO. This session argues that the smart, rational use of information is the only way to peer into the future. Each participant will receive a copy of Al's newest book, *The 22 Immutable Laws of Marketing*.

8:45-9:30am

**The Administration's Healthcare Reform Policy: IT Implications**

**Dr. John S. Silva**  
Program Manager  
Advanced Research  
Project Agency (ARPA)

National and plan-level health information systems are the lifeblood of healthcare reform and the Administration's "American Health Security Act of 1993." New systems must bring useful information to consumers so they can make treatment choices; to health professionals to make better treatment decisions with their patients; to health plan and alliance managers to meet the goals of reform; and to policy-makers so they can assess and fine tune the health of the overall system. The comprehensive privacy protection and security requirements of the President's proposal, its administration simplification policies, and efforts in the healthcare information infrastructure will be addressed.

9:30-10:15am

**A New Definition of Leadership**



**John L. Sullivan, Jr.**  
Vice President &  
Managing Director  
Korn/Ferry International

As the CIO role has evolved from a narrow, task-oriented function to a more multi-dimensional, policy-setting responsibility, different types of leaders and management styles are required to adapt to the new environment and values.

10:15-10:30am

**Coffee Break**

10:30am-12:00pm

**Mentally Tough: Reaching Peak Performance on Demand**



**Dr. Jim Loehr**  
President  
MENTALLY TOUGH™  
Corporate Training  
Program  
Loehr Groppe  
Saddlebrook Sport  
Science Center

Times have never been tougher. If there was ever a time when corporate executives needed to get stronger, more resilient and more productive, it is now. The key is exposure to stress followed by balanced recovery. Work hard and RECOVER EQUALLY HARD is a performance fundamental. Loehr, an expert on sports psychology will talk about tough thinking, tough acting, The Performer Self, empowering emotions, physical and mental toughening, eating strategically and the importance of humor. Loehr's book, *Toughness Training for Life* will be distributed.

12:00-2:15pm

**Summary**

COMPANION PROGRAM

SCHEDULE

SUNDAY, MARCH 13

7-9:00pm

**Networking Reception**

MONDAY, MARCH 14

9-10:00am

**Companion Breakfast**

12:15-1:30pm

**Luncheon with Conference Participants**

1:30-5:30pm

**Sea World Tour**

(Optional)

6:45-7:30pm

**Reception**

7:30pm

**Dinner, Entertainment & Tournament Awards Ceremony**

with Vitas Gerulaitis

TUESDAY, MARCH 15

7-8:00am

**Breakfast with Conference Participants**

3:30-5:30pm

**Masters of Tomorrow**

Tom Peters

5:30-6:30pm

**Reception with Tom Peters**

WEDNESDAY, MARCH 16

7-8:00am

**Breakfast with Conference Participants**

Enrollment in the companion meal program is necessary to attend meals, receptions and entertainment. Enrollment in this program does not include conference session attendance. An optional tour of Sea World is available for companions.

A companion breakfast is scheduled for Monday morning to give everyone a chance to meet. A CIO companion guide will greet companions, review the planned activities and answer any questions.





## Orlando's **HYATT GRAND CYPRESS**

*Elegance and informality combine to make the 1,500-acre Grand Cypress Resort a spectacular setting for the Hyatt Regency. Centrally located near all of Orlando's attractions, the resort includes Jack Nicklaus-designed golf courses, tournament quality tennis — perfect for the tennis clinic and round robin with Vitas Gerulaitis — courtesy of Computer Associates, a health and fitness center, an equestrian center, water sports, superb food and distinctive architecture.*





## Corporate Hosts

ARDIS

**ARDIS** is the first and largest nationwide wireless radio data network enabling in-building and on-street data communications between hand-held terminals and host computers. The service enables executives and mobile workers to access their host systems

and to communicate instantaneously with their peers from virtually any location. The ARDIS network provides nationwide coverage to more than 10,700 cities and towns in all 50 states, Puerto Rico and the Virgin Islands.

BOOZ·ALLEN & HAMILTON

**Booz·Allen & Hamilton** is a global management and technology consulting firm dedicated to helping senior executives improve the performance of their organizations. In today's world, there is no such thing as a "business strategy" without technology and operations components. Similarly, IT

projects cannot be done in a vacuum—systems must be designed and executed in lock-step with the business vision. Therefore, we balance the concerns of both business and information executives on every assignment, applying the right technologies to further the overall goals of the enterprise.

**COMPUTER  
ASSOCIATES™**  
Software superior by design.

**Computer Associates International, Inc.** is the leading independent software company in the world. CA develops, markets and supports integrated systems management, information and business applications

software for a broad range of main-frame, midrange and desktop computers. CA serves the international marketplace through direct operations in 29 countries.



TAKE ADVANTAGE OF CHANGE™

**EDS, Inc.** is a leader in applying information technology to the needs of businesses and government worldwide. Dallas-based EDS has spent over 30 years helping customers achieve their business objectives. The company provides the following services: consult-

ing, systems development, systems integration, systems management and process management. With operations in more than 30 countries, EDS has over 70,000 employees. The company posted 1992 revenues of \$8.2 billion.

GUPTA

**Gupta Corporation**, founded in 1984, created the PC client/server systems software market by delivering the first suite of SQL database products and GUI application development tools exclusively for networked PCs. Smooth integration of Gupta applications and databases into the enterprise is provided via a comprehensive array of

connectivity products. Gupta has consistently worked to satisfy the critical requirements of corporate data processing with the flexible, responsive technologies associated with PC networks. Gupta's market-leading PC client/server products will propel anticipated 1993 revenues to \$57 million.



**Hewlett-Packard** is an international manufacturer of measurement and computation products and systems recognized for excellence in quality and support. HP is the second-largest computer company in the United States with computer revenues in excess of

\$15.6 billion in its 1993 fiscal year. The company's products and services are used in industry, business, engineering, science, medicine and education in approximately 110 countries. HP has 96,200 employees and had revenue of \$20.3 billion in its 1993 fiscal year.





Technology Investment  
Strategies Corporation

#### **IDC/Technology Investment**

**Strategies** helps corporate executives and managers around the world make their strategic business decisions about information technology. As a subsidiary of International Data Group (IDG), the world's leading provider of information on IT, TIS is well connected to the

largest global network of information resources. TIS draws from this vast information network, spanning 49 countries, to provide its clients with a comprehensive set of research and consulting services dealing with the most critical information technology management issues of the day.

**IMRS**

**IMRS** develops software for enterprise-level financial management applications in a client/server environment. Founded in 1981, the company's integrated approach to financial management provides access to summarized, enterprise-wide views and underlying supporting detail. IMRS focuses on end

user needs while working in partnership with IS professionals to address the diverse transaction processing, accounting, and financial information needs of large corporations. With availability of worldwide support and services, IMRS provides a complete international solution set.

**Information  
Builders**

**Information Builders, Inc.**, has helped MIS organizations develop and maintain mission-critical information systems for nearly 20 years. Today, more than one million people around the world use Information Builders' products, such as FOCUS<sup>®</sup>, the number one fourth-generation language for application development and decision support. For client/server computing,

Information Builders' Enterprise Data Access (EDA) /SQL gives users of SQL-based applications and tools access to relational and legacy data they could never reach before. Backed by expert consulting and comprehensive educational services, Information Builders delivers flexible solutions for all platforms, including Windows and OS/2.

**INFORMIX<sup>®</sup>**

**Informix Software, Inc.** provides the most complete and productive database application technology to build, deploy, run and evolve applications. Informix products include powerful distributed database management systems, robust application development tools, and graphical- and character-based productivity software for delivering

information to every significant desktop platform. With corporate headquarters in Menlo Park, California, Informix has European headquarters in London, and Asia/Pacific headquarters in Singapore. Informix Software, Inc. is a leading supplier of information management software providing solutions from the database through the desktop.

**MAXM**  
Systems Corporation

**MAXM Systems Corporation** is the world's leading supplier of client/server based integration and automation software for Automated Enterprise Management. The company's premiere product, MAXM, permits the integration, automation and management of virtually any wide area network, local area network, distributed processing,

voice or data center component and is particularly attractive to the many companies searching for a comprehensive, enterprise-wide management solution. MAXM Systems is dedicated to providing the most efficient and cost-effective Automated Enterprise Management solutions available in the industry.

**Nielsen**

**Nielsen Marketing Research (NMR)** is the recognized global leader in marketing and decision support information. NMR provides customers with the highest quality information and decision support services using AI-based software, visual programming environments, EIS and ad hoc analysis

and delivery systems. From its world headquarters in Northbrook, Illinois, Nielsen supplies a wide range of services and technologies that help consumer-goods manufacturers and retailers develop insights to make better business decisions.



**PictureTel Corporation**, the world leader in videoconferencing technology, is "redefining the way the world meets." The company develops, manufactures and markets a full range of visual communications solutions from the desktop to the auditorium, supported by offices in over 100 cities in 50 countries. To

provide products and solutions that are in step with the strategic technologies of the '90s, PictureTel is working with the leaders in computing, telecommunications, software and the most respected organizations in a variety of vertical markets.

## Racal-Datacom™

**Racal-Datacom** is an independent provider of data communications products, systems and services designed to meet the business objectives of corporations and government organizations. The company offers solutions for the implementation, integration, management and support of enterprise

networks from the desktop through local area and wide area networks. Racal-Datacom offers a broad range of LAN/WAN products, all managed by a single network management system and all supported by a full range of network services.



**Sun Microsystems**, founded in 1982, is a Fortune 139 company and a pioneer in the general-purpose workstation market, having launched the now-popular concept of open systems. Sun's networked UNIX products improve workgroup productivity, utilizing the client-server computing model.

According to analysts, the company's products command the largest share of one of the computer industry's fastest growing market segments: workstations and servers. Sun is the exclusive computer supplier to the 1994 World Cup.



**Syncordia** is the world's first company created exclusively to meet the global network outsourcing requirements of the world's largest multinational corporations. Syncordia's outsourcing solutions are designed to help customers improve their global business performance by transferring responsi-

bilities related to the ownership, design and operation of their international enterprise network. Syncordia has a global TDM network that reaches many of the world's largest business centers and a global customer support operation that includes centers in North America, Europe and Asia/Pacific.



**Texas Instruments Inc.**, the I-CASE technology leader, is a high-technology company with sales and manufacturing operations in more than 30 countries. TI develops, manufactures and markets semiconductors, defense electronics systems, software productivity tools, computer systems and peripheral

products, custom engineering and manufacturing services, electrical controls, metallurgical materials and consumer electronics products. At Texas Instruments, technology leadership and persistent commitment to quality have been the keys to success.



**XcelleNet, Inc.** develops and markets RemoteWare, a set of software tools used to create messaging-based, automated enterprise workflow systems for organizations with fleets of geographically dispersed users. Centrally

managed RemoteWare systems can support thousands of remote or mobile users across "wireless" and "wireline" connections. RemoteWare is ideally suited for business processes dependent on transaction-based information flow.



CIO Perspectives<sup>SM</sup>

## Re-Visioning IT: Achieving an Enterprise Perspective

SUNDAY, MARCH 13–WEDNESDAY, MARCH 16, 1994 • HYATT GRAND CYPRESS • ORLANDO, FLORIDA

NAME \_\_\_\_\_

TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

MAIL STOP \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

ZIP CODE \_\_\_\_\_

( ) \_\_\_\_\_

PHONE \_\_\_\_\_

( ) \_\_\_\_\_

FAX \_\_\_\_\_

WHAT IS YOUR INDUSTRY? \_\_\_\_\_

YOUR NAME AS YOU WANT IT TO APPEAR ON THE BADGE \_\_\_\_\_

NAME OF COMPANION (IF ATTENDING) \_\_\_\_\_

**ADDITIONAL COMPANY ENROLLMENT**

The following person from my company also plans to attend:

NAME \_\_\_\_\_

TITLE \_\_\_\_\_

MAIL STOP \_\_\_\_\_

( ) \_\_\_\_\_

PHONE \_\_\_\_\_

( ) \_\_\_\_\_

FAX \_\_\_\_\_

**ENROLLMENT FEES***Prior to JANUARY 15, 1994*☐ **IS Practitioners/Executives:** If you are a CIO, IS executive or hold another executive position, the fee is **\$1,195**.☐ **Government/Military:** The fee, which includes your hotel for three nights, is **\$1,595**. CIO will make your reservations.*On/after JANUARY 16, 1994*☐ **IS Practitioners/Executives:** If you are a CIO, IS executive or hold another executive position, the fee is **\$1,295**.☐ **Government/Military:** The fee, which includes your hotel for three nights, is **\$1,695**. CIO will make your reservations.☐ **Sales/Marketing/Consulting:** If you are in a sales, marketing or consulting position, the enrollment fee is **\$5,000**.**Fee includes** conference sessions, concurrent sessions, corporate host displays, conference materials and scheduled food and beverage. Transportation and hotel are your responsibility.**OTHER ACTIVITIES**

Monday afternoon activities include:

☐ Golf Tournament \$ 156☐ Tennis Tournament Complimentary☐ Sea World Tour (Attendee) \$ 47☐ Sea World Tour (Companion) \$ 47☐ Companion Meal Program \$ 199

Companions must be enrolled in the Meal Program to attend any conference-related functions. (Includes all scheduled food and beverage functions. It does not include conference session attendance.)

**PAYMENT INFORMATION**☐ Check enclosed ☐ Bill company☐ P. O. # \_\_\_\_\_☐ Credit card # \_\_\_\_\_☐ AMEX ☐ VISA ☐ MC

Exp. \_\_\_\_\_

Signature \_\_\_\_\_

**ATTACH BUSINESS CARD HERE****ATTIRE****Casual! Please, no suits, ties or business attire!****HOTEL ACCOMMODATIONS**

A block of rooms has been reserved at the Hyatt Grand Cypress. We urge you to make your reservations early by calling the hotel at 800/233-1234. Be sure to identify yourself as part of the CIO conference to receive the conference rate. Hotel reservations/ cancellations and charges are your responsibility, except for government/ military participants.

**TRANSPORTATION**

American Airlines is the official conference carrier. Call 800/433-1790 and reference STAR file #S0934D5. AVIS is the official rental car company. Call 800/331-1600 and reference the Avis Worldwide Discount (AWD) #B794336. Shuttle bus transportation is available from the Orlando International Airport.

**CANCELLATION**You may cancel your enrollment up to 3/4/94 without penalty. *No refund or credit will be given for cancellations received on or after 3/5/94.* You may send a substitute in your place.**FAX, CALL OR MAIL YOUR ENROLLMENT**

Fax to 508/879-7720

Call us at 800/366-0246

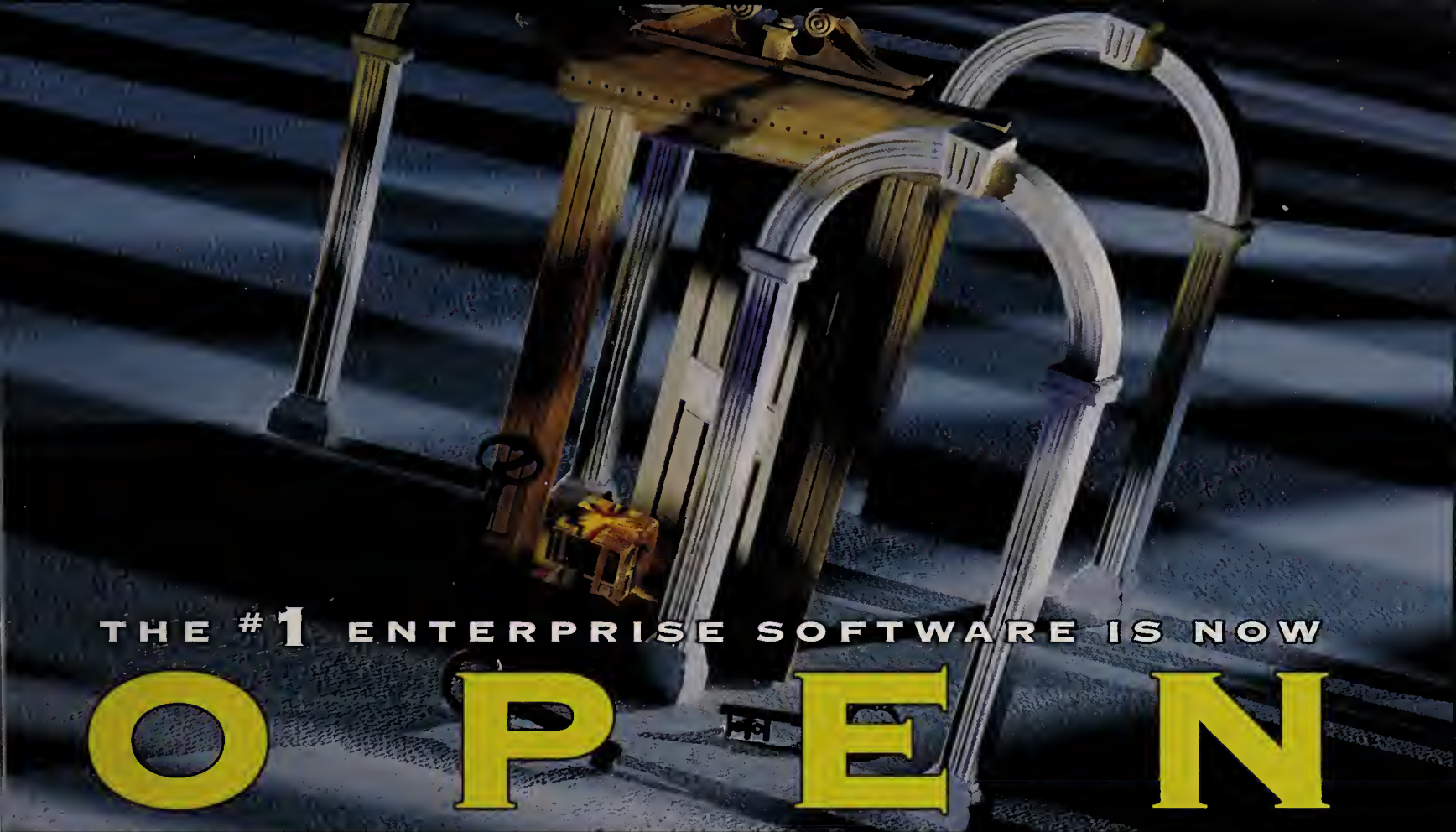
Mail to CIO Publishing, Inc.

492 Old Connecticut Path

Framingham, MA 01701

Attn: Elizabeth Ladendecker





THE #1 ENTERPRISE SOFTWARE IS NOW  
**O P E N**

# BPCS/AS

CLIENT-SERVER SOFTWARE IS NOW AVAILABLE ON  
**UNIX & AS/400**

The door to global business productivity is now open. SSA is the key.

Today, there is an easy, reliable way to integrate every functional part of your business: engineering, manufacturing, sales, distribution and finance, even if your application software runs on diverse computer hardware platforms. It's called BPCS/AS, the open client-server software solution from SSA.

BPCS/AS optimizes your investment in technology. It helps you respond to customers, cut waste, improve processes and speed communication among all business locations, enterprise-wide. Simply stated,

BPCS/AS helps businesses remain competitive in today's global economy.

BPCS/AS is now available to Process, Discrete or Hybrid manufacturers running AS/400, RS/6000 and HP9000 systems in single or multi-plant environments.

Installed at more than 7,000 sites, BPCS/AS is backed by a global network of 5,000 professionals in 65 countries and a 24 hour-a-day International HelpLine. BPCS/AS works where and when you need it...on budget and on schedule.

Discover BPCS/AS. It is your key to enterprise-wide success.

**CALL 1-800-SSA-BPCS**  
FOR YOUR FREE PREVIEW DISK OF BPCS/AS TODAY.

**SSA** SYSTEM SOFTWARE ASSOCIATES, INC.

500 W. Madison, Chicago, Illinois 60661 U.S.A. Telephone: 312-641-2900 Fax: 312-641-3737

© 1994 SYSTEM SOFTWARE ASSOCIATES, INC. BPCS/AS IS A TRADEMARK OF SSA. IBM, AS/400 AND RS/6000 ARE TRADEMARKS OF INTERNATIONAL BUSINESS MACHINES CORPORATION. UNIX IS A TRADEMARK OF UNIX SYSTEM LABORATORIES, INC. HP 9000 IS A TRADEMARK OF NEWLETT-PACKARD COMPANY.





will receive a weighted total score of  $(2 \times 100) + (4 \times 50) = 400$  points.

While the scoring method addresses the need to impose structure and combine multiple criteria, it suffers from several limitations. On the technical side, it is simply wrong to treat evaluations on this type of scale as real numbers that can be multiplied and summed. If 5 means excellent and 4 means very good, we know that 5 is better than 4, but we don't know by how much. We can't even assume that the distance between 5 and 4 is equal to that between 4 and 3. Consequently, final scores may look like real numbers, but they are not as meaningful and can even be misleading.

Finally, on the managerial side, scoring methodologies provide little support for the selection and weighing of criteria. Frequently there is no explicit link between the criteria and business objectives. For example, the IS steering committee of a bank may use the criteria of contribution to quality, financial performance and service. The bank's strategy may focus on customer retention, but these

## In many organizations, the ranking process is conducted in a fog.

criteria don't recognize this; a project aimed at improving service to potential new customers might score high on service even though it doesn't serve existing customers.

The Analytic Hierarchy Process (AHP), developed by Thomas L. Saaty in the 1970s, addresses these technical and managerial problems. Despite some heated debates regarding its theoretical underpinnings, this methodology has been used extensively by government and business organizations. Expert Choice Inc. of Pittsburgh, the leading vendor of AHP software, reports thousands of installations of its namesake product on PCs around the globe.

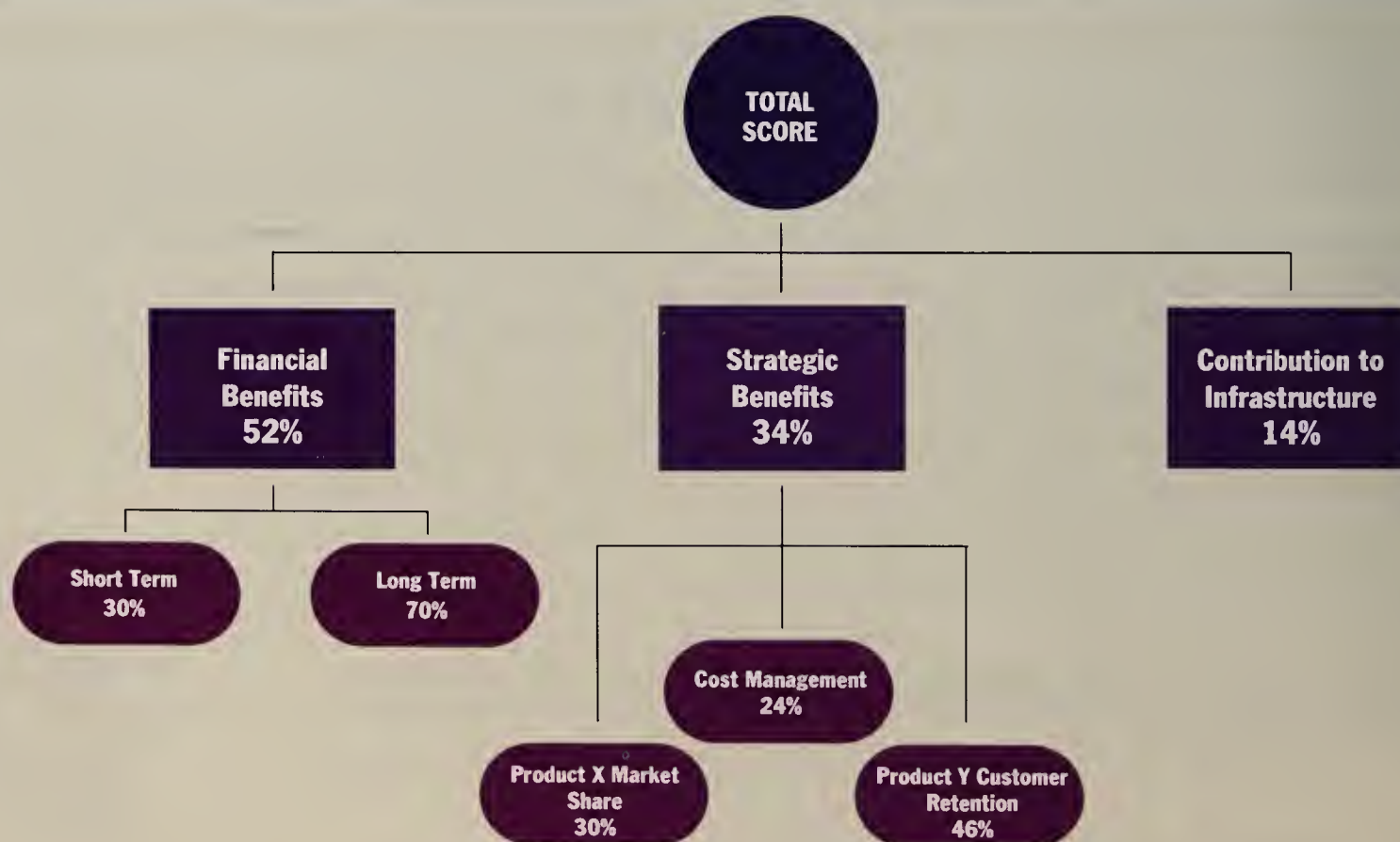
The first step in using the AHP is to construct a hierarchy of criteria and subcriteria. The example shown here uses financial benefits, contribution to strategy and contribution

to IT infrastructure as the main criteria. Financial benefits, which focuses on tangibles, is divided into short-term and long-term subcriteria. Similarly, contribution to strategy, which focuses on intangibles, is divided into increasing market share for product X, retaining existing customers of product Y and improving cost management.

This hierarchical structure offers a natural way to divide and conquer the complexities inherent in organizational priorities; without it, managers might simply be overwhelmed. Since the hierarchy can reflect the structure of organizational strategy and critical success factors, it also provides a way to select and justify projects according to their alignment with business objectives.

Last fall, a large Southern company used the AHP to rank more than 100 project proposals worth many millions of dollars. Ten managers from finance, marketing and MIS spent a full day just setting up the hierarchy. They found that, in addition to clearly defining the evaluative criteria, the process produced a more-coherent

### Sample Hierarchy of Ranking Criteria\*



\* Numbers listed below main criteria are the weights assigned to them; numbers given below subcriteria are the proportion of the main criterion's weight they are assigned.



## Rankings of 5 Sample Proposals

| PROPOSAL          | SHORT-TERM<br>FINANCIAL<br>BENEFITS<br>15.6%* | LONG-TERM<br>FINANCIAL<br>BENEFITS<br>36.4% | INCREASE<br>PRODUCT X<br>MARKET SHARE<br>10.2% | RETAIN PRODUCT<br>Y CUSTOMERS<br>15.64% | IMPROVE COST<br>MANAGEMENT<br>8.16% | CONTRIBUTE TO<br>INFRASTRUCTURE<br>14% | TOTAL SCORE* |
|-------------------|-----------------------------------------------|---------------------------------------------|------------------------------------------------|-----------------------------------------|-------------------------------------|----------------------------------------|--------------|
| 1 (All Excellent) | Excellent                                     | Excellent                                   | Excellent                                      | Excellent                               | Excellent                           | Excellent                              | 1.00         |
| 2 (Aligned)       | Good                                          | Excellent                                   | Good                                           | Excellent                               | Good                                | Excellent                              | 0.76         |
| 3 (All Very Good) | Very Good                                     | Very Good                                   | Very Good                                      | Very Good                               | Very Good                           | Very Good                              | 0.60         |
| 4 (Not Aligned)   | Excellent                                     | Good                                        | Excellent                                      | Good                                    | Excellent                           | Good                                   | 0.54         |
| 5 (Mixed)         | Poor                                          | Fair                                        | Good                                           | Very Good                               | Excellent                           | Good                                   | 0.28         |

\* Numbers listed under each criterion are obtained by multiplying the proportion assigned to the subcriterion by the weight of the criterion above it, e.g.,  $0.30 \times 0.52 = 0.156$ .

+ The total score for a proposal is calculated by multiplying the numeric value of the evaluation it receives (Excellent = 1.00, Very Good = 0.60, Good = 0.30, Fair = 0.10, Poor = 0) by the weight of the criterion and summing the results across all criteria.

view of organizational strategy.

The second step in applying the AHP involves allocating a weight to each criterion and splitting that weight among its subcriteria. A pairwise-comparison process, in which participants compare each criterion with each of the others one by one, provides more-accurate weights by allowing managers to focus on a series of relatively simple questions. The sample hierarchy shown here indicates that financial benefits received a weight of 52 percent, which is then split into 30 percent and 70 percent between the subcriteria. This means that short-term financial benefits receives an overall weight of 52 percent  $\times$  30 percent = 15.6 percent.

This hierarchical allocation and splitting of weights addresses the problem of double counting, where listing many similar factors, such as quality, service and reputation, can result in too much weight being given to what is actually one factor. In the AHP, these factors will be grouped as subcriteria under one criterion and will share its weight.

Once the hierarchy is established, the pairwise-comparison process is used again to assign numeric values to the labels that make up the evaluation scale. In our example, the five-step scale of poor, fair, good, very good and excellent was used for each of the bottom criteria. These labels were assigned values of 0, 0.10, 0.30,

0.60 and 1.00, respectively—very different from the naive, equally spaced 1-to-5 scale. In essence, the best evaluation receives a perfect score of 1.00 and all the other labels receive weights relative to it.

Different scales may be used for each criterion. For example, short-term financial benefits may be evaluated on a scale such as none, less than \$50,000, \$50,000 to \$200,000, and more than \$200,000.

In the Southern company, the team spent a day allocating weights among the criteria and setting up evaluation scales.

Top-executive input, which is critical in the selection and evaluation of criteria, diminishes once the model is finalized. It is now up to user departments and IS analysts to evaluate project proposals on each of the criteria. Typically, user departments should estimate benefits, while the IS department estimates costs, risks and contribution to IT infrastructure.

A final score is calculated by multiplying the numeric value of the evaluation the project receives by the weight of the criterion and summing the results across all criteria. In the table shown here, results for five projects are displayed. Since excellent is worth 1.00 point and very good is worth 0.60, project 1 (all excellent) scored a total of 1.00 and project 3 (all very good) scored a 0.60. Both the aligned and not-aligned projects (2

and 4) received three excellent and three good evaluations; however, the aligned project scored much higher because its excellent evaluations were on the most-important criteria.

Unlike the results of regular scoring models, the distances between AHP scores are significant. The aligned project, for example, which scored 0.76, is almost three times better than the mixed project (No. 5), which scored only 0.28.

The AHP can also improve the process of writing and reviewing project proposals. Proposals can be structured to include self-evaluations using the criteria of the model; this can drastically reduce information overload on the review committee, and can improve communication and trust among executives, user departments and IS managers.

Who should take the lead? The current hazy state of affairs may be comfortable and even fun for the CIO. But in the long run, the CIO stands to lose the most from deterioration in communication and trust. The CIO is also under increasing pressure to demonstrate alignment of IT investments with business objectives. The time is ripe, then, for IS executives to usher in an improved project-selection process. 

*Ido Millet is a consultant and assistant professor of MIS at Penn State Erie based in Erie, Pa.*





# THERE'S NO FREE RIDE

The costs of client/server are many,  
varied and often unpredictable.  
Still, most companies are betting  
that it's worth the price  
of admission.

If there is an ideal model for client/server computing, it is probably that of a crackerjack baseball club, powered by a fusion of the contradictory spirits of individuality and teamwork.

But this club will cost you. Plenty.

Certainly the personal computers used in client/server systems bear strikingly smaller sticker prices than big, centralized mainframes or minicomputers. And software is cheaper for desktop machines, too. But once all the other components of a client/server system are tallied together—wiring, routers, consultants, middleware and the rest—"client/server will cost you more than what you're doing today," says Ken Dec, program director of client/server logical-view services at the Gartner Group, in Stamford, Conn. Add to that the end-user costs: How do you load 60,000 copies, worldwide, of a newly updated operating system? A Gartner Group study suggests that a personal computer will cost \$40,000 over five years and that 85 percent of that sum is labor (such as end-user training and support).

Client/server's raid on the wallet isn't the only cost that organizations should consider. The costs are also managerial: Client/server systems can empower front-line employees and foster teamwork and horizontal decision-making. But this renders passe the jobs of managers long used to hierarchy and control. Pruning middle-management ranks is a disquieting task, however necessary; there will likely be a long period of retraining for survivors (who must learn to be facilitators rather than administrators). The whole experience claims managers' time and attention and can be a drag on productivity.

Client/server systems bring changes to the organization as a whole—and sometimes trail political costs in their wake. As end-user departments shoulder more of the technology and support costs associated with client/server, will they clamor for even greater mastery over their own computing destinies? Or will IS departments use the interconnections between an organization's machines as a means to regain control of the desktop? Then, too, the new client/server systems aren't anything like the systems they replace—so there are administration costs, systems-management costs and security trade-offs as well.

Still, experts argue that client/server will

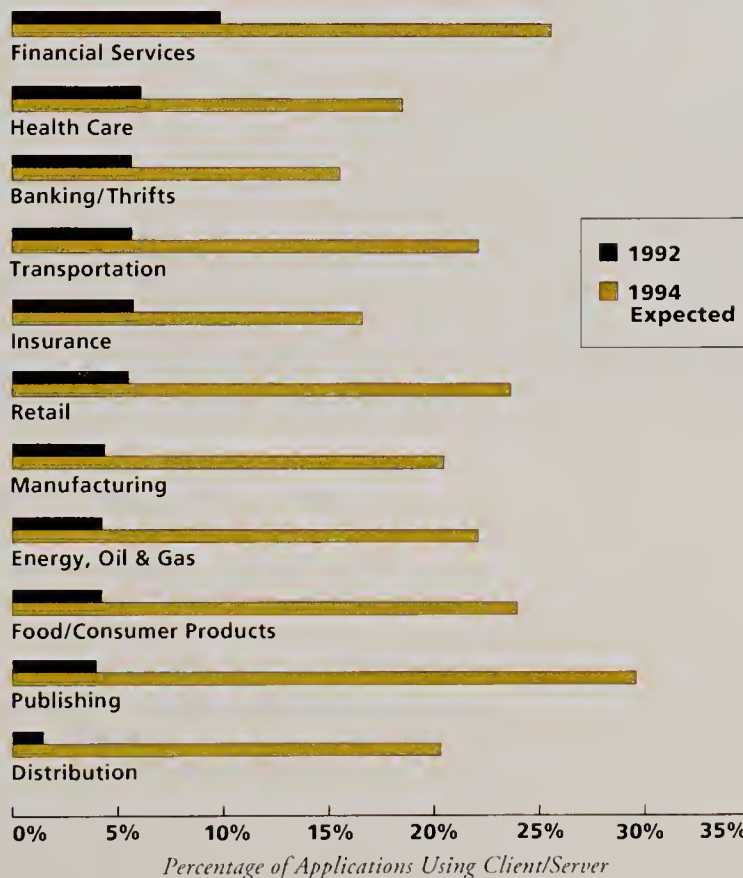
eventually prove to be less pricey than old-world computing solutions. The bigger payments for client/server—including the managerial, political and administrative costs—occur on the front end, as companies build their new infrastructures.

In short, companies may do better to look at client/server as an investment rather than a cost. Apparently, many are, to judge from the jump in client/server implementations captured in a recent survey conducted by New York-based Deloitte & Touche. And given the now familiar business benefits of client/server computing—speed, flexibility and greater communication with customers and suppliers—it may be the kind of investment companies can't afford to shirk.

—Thomas Kiely

## CLIENT/SERVER USAGE

*Companies in all industries will dramatically increase the number of client/server applications in use this year*



Source: Deloitte & Touche, 1993



## THE BOTTOM LINE

# VARIABLE COSTS

Calculating the cost of a client/server solution has always been an imprecise science at best. While a number of studies have emerged to shine some light on the subject, the answer to the question, "What price client/server?" still seems to be, "It depends."

BY THOMAS KIELY

**J**ust a couple of years ago, CIOs could shake their heads justifiably at this thing called client/server. Distributed processing and dispersed applications certainly looked appealing—flexible, highly functional business systems are tunes to soothe the savage end user. But the new technology was fraught with uncertainties.

High on the list of the CIO's concerns about client/server systems was the murky economics of it all. In fact, making an investment in the new-age technology has long seemed akin to buying a car from a dealer who sells autos a la carte: Every knob and bolt is priced separately, from the screws used to assemble the dashboard to the fees charged by quality-assurance inspectors. Good luck figuring out in advance what the damn thing will cost you!

A la carte systems have traditionally *seemed* less expensive than bigger mainframe or minicomputer systems, on the face of it. Ranking the price per MIPS (million instructions per second) of a workstation against a mainframe will take your breath away: The mainframe appears to be

100 times or so more costly. But CIOs have always recognized that client/server systems were more than a network of cheap PCs. Rather, client/server was a gauntlet of hidden costs, from servers and connectors that link together local area networks across the enterprise (and the various layers of software needed to manage these complex new systems) to fees for consultants and systems integrators, training programs for technology staffers unfamiliar with the new systems, beefed-up support for end users—and on and on.

So two years ago, CIOs had good reason to say they had more questions about the economics of client/server than answers. Among the questions: Are client/server applications less costly than mainframe applications (as vendors of client/server products invariably claim), or do hidden and unanticipated costs eat up the difference? How does a company calculate in advance a realistic price tag for a distributed client/server application? And how does one figure out the return on investment of a distributed system, especially when the benefits are soft ones (such as improved customer service) and





difficult to appraise in dollars and cents?

Today, CIOs have answers to some of those questions—sort of. The general pool of information about client/server costs has grown considerably in the last two years. That's the good news. The bad news is, despite this, when a CIO begins to calculate the economics of client/server within the context of his or her own company, the exercise is still something of a black art.

Why? The problem isn't just the complexity of the newer systems—the interconnected hardware, the layers of software. Rather, the environment into which the new system is implemented varies from

company to company, making it difficult for CIOs to draw generalizations about the final, itemized bill for a client/server system.

Simply put: The economics of client/server are situational.

For instance, will the client/server system under consideration replace an application on the mainframe? In some cases, savings may accrue that will help to offset costs of the implementation. Other companies may not see much savings, depending on how the new system is integrated with the host computers. Is the new system a standalone package intended to support a reengineering effort? It may be less expen-

**M**OST companies wading into client/server waters won't gain big cost savings, at least not initially.



## A HOW-TO GUIDE

*To help IS planners expect the unexpected, the Gartner Group has drawn up a model that breaks down client/server costs into their component pieces*

**E**stimating in advance the cost of a client/server implementation is a hellish task, in large part because of the multitude of details IS planners need to consider—unexpected costs always crop up. Now the Gartner Group, in Stamford, Conn., has developed a detailed guide that will make the job a little easier and, the firm hopes, make the cost forecasts a little more accurate.

The meat of the guide is a thorough breakdown of the numerous “cost elements” involved in a client/server implementation. These include not only a host of hardware, software, communications, training, consulting and application-development labor expenditures but also a number of often-overlooked direct and indirect operations charges, such as the cost of negotiating contracts with vendors and consultants.

But there is more. Ken Dec, Gartner’s program director for client/server logical view services, has tried to figure out a reasonable range of costs for each element: What does it cost to wire a building, or part of a building, and what factors can raise or lower those costs? What are the real costs for developing user interfaces? How much should software upgrades cost in the second or third year of implementation—considering the variety of approaches a company can follow? Much of this information was obtained through extensive interviews with Gartner customers, systems integrators and vendors, so the numbers come from experience rather than theory.

Finally, Dec looked at how these costs vary depending upon the size of the implementation. For instance, unit prices for PCs may be lower for an average large-scale project across several sites than for a smaller department-size implementation.

As of this writing, Dec intends to distribute the preliminary results of his research to his clients in March and then a full-size report in the following months.

—T. Kiely

sive in the long term to run this system on a network rather than add it to the existing portfolio of mainframe applications—but it may prove to be more expensive than using a mid-size computer instead.

Still, a few new studies on client/server are beacons in the fog. Reports emerging from technology-research firms such as Forrester Research Inc., International Data Corp. and the Gartner Group seem to underscore a growing consensus among consultants and systems integrators: Client/server systems may be less costly than big-iron al-

ternatives in the long run, but in the short run they will require more capital. Client/server technology is an investment, not a cost-cutting strategy.

For instance, Forrester Research, based in Cambridge, Mass., recently developed a client/server cost model based on a study of 25 installations. In its report on the study, released in February 1993 and titled *Client/Server’s Price Tag*, Forrester concludes that a model client/server customer-service system costs about \$2 million—or about the same as a similar solution running on an IBM Corp. AS/400 (a common platform among mainframe-burdened and downsizing-minded CIOs). Why the draw? While companies can expect to develop applications less expensively in a client/server environment, Forrester notes, they will pay significantly more for training than they would with a similar minicomputer-based application. Client/server costs for systems support and management are also more pricey than the bigger-iron alternatives.

Readers of the report should bear in mind one caveat, however. The Forrester model assumes that hardware and software costs begin from scratch (over \$500,000 for the client/server paraphernalia). In fact, many companies already have mid-range computers and LANs in place, which can complicate the comparison.

Analysts at International Data Corp., a Framingham, Mass., IT market-research firm (owned by CIO’s parent company, International Data Group), found more-striking cost differences in a 1993 study of computing at 150 sites. To develop a “cost to use” model for mid-range, enterprise network processing—incorporating hardware, software, staffing and overhead costs—IDC compared the economics of a NetWare-based PC LAN against an IBM AS/400 and minicomputers from Digital Equipment Corp. and Hewlett-Packard Co.

In companies with a number of operating units (sporting similarly configured systems) and a strong, centralized IS organization, the IBM or DEC minicomputers clock in at almost half the cost of the LAN, IDC concludes. Like Forrester, IDC deduces that the infrastructure costs for the two environments were similar (although the two firms measured costs somewhat differently). But IDC figures that the price for operations staff can run as much as 10 times higher for client/server systems than for minicomputers.



client / server

confusion

■ There are those who would like you to believe they can help you successfully migrate to the client/server platform overnight. But who do you believe? You know that no one can build truly robust applications in a day. The only way to build data-rich, mission-critical applications is by working together with various trusted partners over time. We have the products and people to help you make client/server a reality. In fact, a great many of the Fortune 1000 companies have been accessing their main-frame data and developing client/server applications with our help for a long time. But our tools weren't invented just to ride on the coattails of client/server. What we offer you is a multi-platform suite of development and reporting tools. Tools that draw their strength from NOMAD's advanced 4GL technology and expand your reach with the graphical reporting power of Front & Center. Proven tools that allow you to build robust applications accessing DB2 and other major data sources such as SQL Server and Oracle from PC and Unix platforms. In short, a way to carefully, intelligently get to client/server without sacrificing everything you've invested in information technology. If you believe, as we do, that building a successful client/server platform is a step-by-step process, take the first step by calling 1-800-441-MUST. We want to work with you.

Helping you migrate to client/server.

**MUST** SOFTWARE  
INTERNATIONAL  
Member Thomson Information Technology Group

BENELUX, CANADA, FRANCE, GERMANY, ISRAEL, ITALY, JAPAN, SOUTH AFRICA, SPAIN/PORTUGAL, SWITZERLAND, UNITED STATES, UNITED KINGDOM

NOMAD is a registered trademark and Front & Center is a trademark of U3S International BV. Other products mentioned herein are the trademark or registered trademark of their respective companies.



Forrester cautions that its model is provisional: Development, training and support costs for client/server applications should drop over time as employees become more familiar with the new environment. That warning applies to IDC's assessment, too. On the other hand, IDC argues that companies running simple,

**"NOBODY IN THE ORGANIZATION HAS A TOTAL perspective on what's being spent on client/server."**

*—John Halloran*

shared applications across PC networks, such as E-mail, may need to spend serious dollars to upgrade the network before deploying more-sophisticated client/server applications, such as accounting packages or data-analysis tools.

What both studies suggest—and a growing number of client/server consultants assert—is that most companies wading into client/server waters won't gain big cost savings, at least not initially. In fact, many companies should expect to pay more for the technology for some period of time.

How much more? Depending on the existing technology infrastructure in the company and the size of the client/server application the company builds, costs will rise 10 to 20 percent above current IT spending levels, says Bob Millrad, market development manager for commercial rightsizing at Sun Microsystems Computer Corp. in Mountain View, Calif. And CIOs might expect to pay those higher costs for a year or more before seeing any returns, adds Steven Guengerich, a vice president at Houston-based BSG Consulting Inc.

Other consultants familiar with a range of client/server implementations—such as Hugh Ryan, director of new-age systems at Andersen Consulting in Chicago, and Jim Sims, president and CEO of Cambridge Technology Partners, a systems integrator based in Cambridge, Mass.—might quibble with Millrad or Guengerich over average percentages or duration. But all four would agree that the differences in their perceptions reflect the broad spectrum of possibilities in the world of client/server economics.

Since client/server costs are situational, surprises abound for even the most-careful planners. One client/server-wise CIO was

surprised to spend more on end-user support than he had reckoned he would. Richard Justice, executive vice president of the National Association of Security Dealers Inc. in Washington, installed a client/server network to handle corporate systems, such as human resources, finance and regulatory applications. "There is a lot more involvement by users in the system, and that requires more support." (By way of advice, Andersen Consulting's Ryan estimates that anywhere from 10 to 40 percent of the total cost of the system will go into help desks and other support costs.)

End-user support isn't the only hidden cost. Ryan notes that there are always unusual and unexpected costs when companies extend the network into corners of the company "where no computer has gone before." One client, for example, wanted to install computers in a carbon-dust factory operation but first had to purchase equipment to purify the air. And Sun's Millrad notes that client/server downsizers shouldn't forget to anticipate such transition costs as running parallel operations for some period of time and the cost of removing and disposing of old equipment.

To aid CIOs planning a move to client/server, the Gartner Group, in Stamford, Conn., has developed an extensive cost-planning model. (See related story, Page 32.) Most CIOs currently tally up their expected outlays for each year of the planned implementation and then perform a three- or five-year cash-flow analysis. (Simply put, they calculate the net-present-value savings that accrue by replacing a current system with a client/server alternative or by writing a client/server application to avoid upgrading bigger iron.)

But such planning strategies are only approximate: Expect the unexpected, experts say. Moreover, most plans don't take into account a full and accurate depiction of all the money that will be spent on the system. The Gartner Group estimates that roughly 25 to 30 percent of a company's total outlay for technology falls outside the IS budget—and rare is the CIO who will factor end-user spending into a cost-benefit analysis. End-user computing also engenders support costs that don't appear on the IS balance sheet—users supporting users may cost companies as much as \$6,000 to \$15,000 per workstation in a client/server rollout, estimates Boston-based IT consulting firm Nolan, Norton & Co.



"Nobody [in the organization] has a total perspective on what's being spent on client/server," says John Halloran, a managing partner at Nolan, Norton. If funding for a project comes from the vice president of marketing rather than the CIO, that may not matter to either manager now. But eventually it may matter to the CEO—and it won't be the marketing guy who is held responsible for the absence of an enterprise-wide IT spending perspective.

Halloran recommends that CIOs begin now to teach senior managers how to accept the vagaries of cost-assessment and return-on-investment models in the new world of client/server technology. "The 1970s and the 1980s was the era of ROI on a project-by-project basis," says Halloran. "But you can't use old principles for a new environment." Once upon a time, applications supporting the business had reasonable life spans, and so projects could be anticipated, planned and budgeted. But now business changes quickly, so the applications supporting it must change too: "You can't know what you need six months down the road," Halloran says.

How does a CIO balance the planned against the unexpected? Pay attention to the needs of the business, Halloran advises. Review the business, identify the types of applications and platforms that are most appropriate for a given environment, roll out technology reasonably in terms of time and cost—and learn to live with a little vagueness. "Organizations that get caught up in ROI modeling don't advance very far," Halloran argues; decision-making often becomes snarled in the complexity of the financial-analysis process.

A contrary view is advanced by BSG's Guengerich, whose title is CHIEF (it stands for culture, history, infrastructure, empowerment and fun—but essentially he runs human resources and the communications group). BSG insists that customers do a cash-flow analysis for proposed projects.

Post-implementation, ROI is an invaluable management tool, Guengerich insists. "But you have to look at ROI from both a macro and a micro level," he says. The macro level can be assessed by the appropriate business measures that are applied to the area of the business affected by the rollout—such as the system's impact on sales or inventory levels. "On a micro level, you try to understand the changes the system has made on the way people do their

work—and there may be both positive and negative ways this happens." Micro-eyed measures are both hard and soft, "and there are hundreds of things you could measure." For instance, hard measures might be the number of orders entered into a system, or the number of calls answered—again, depending on what is appropriate for the business and the application. Soft measures would include customer satisfaction and the ability of departments to communicate with each other better.

Client/server boosters argue that the benefits of moving to client/server outweigh the initial uptick in costs: Think of client/server as an investment, they say. Indeed, the press has trumpeted numerous reports over the last two years or so of the

**O**RGANIZATIONS that get caught up in ROI modeling don't advance very far."

—John Halloran

## BEST GUESSTIMATES

*A few observers offer rule-of-thumb guidelines for predicting client/server costs. As one might expect, they vary:*

- Forrester Research Inc. estimates that 25 percent of the total dollars for a client/server project will go toward hardware and software; 7 percent will go for training, 40 percent for maintenance and support.
- The META Group, a Westport, Conn., IT research and consulting firm, estimates that approximately 30 percent or less of the dollars will go toward hardware and software. (The META Group is developing a proprietary client/server cost-analysis model with customers and declined to discuss additional numbers.)
- Skip Glass, a product marketing director of interoperability products at software vendor Sybase Inc., in Emeryville, Calif., believes the figures are 50 percent for hardware and software and 50 percent for everything else.

big savings companies have made by downsizing mainframe applications, or of the competitive advantage gained by companies that installed fast, functional, flexible information systems. But the multiple soft benefits of the new systems are as elusive as the hidden costs: It is hard to translate measures, like those Guengerich advocates collecting, into bottom-line figures. And in any case, soft measures—like the economics—are situational. **CIO**



## MANAGEMENT ISSUES

# THE LEADING ROLE

Once cast primarily as supervisors and administrators, managers faced with the switch to client/server are learning a new part—and making it work

BY RICHARD PASTORE



**M**r. Mediocre, filling out his umpteenth job application, comes to the part that asks his reason for leaving his last position, middle manager at Hypothetics Engineering. Once more he angrily scribbles "client/server."

It's the prevailing perception—middle managers bailing out or being booted out for failing to adapt to distributed computing and business reengineering. But this stereotype ignores the fact that many managers are successfully embracing a new way of work, despite the cost in long hours, peace of mind and extra-strength Tums.



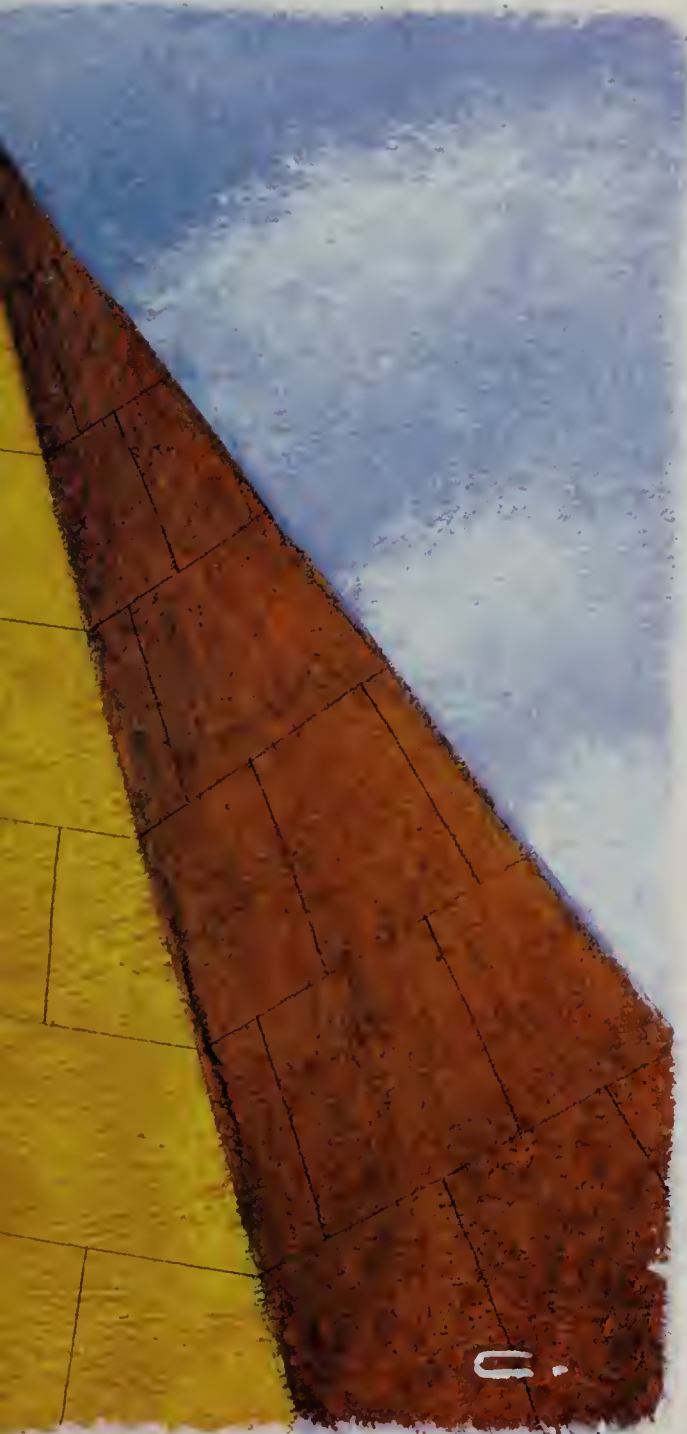


ILLUSTRATION BY DAVE OUTLER

They are relinquishing authority, learning to coach empowered teams, communicating strategic vision and adopting a more hands-on, interactive approach to ease employees through the turmoil of change.

Even though they are often being retrained themselves, it falls on managers to guide staff through the transition to client/server and new work processes. But in the longer term, the bigger challenge will be making the transition from being supervisors to being leaders. Until now, many managers have done little but administer, suggests John Southcott, principal at Deloitte & Touche in Toronto. In the distributed, reengineered setting, "that adds no val-

ue; we don't need that anymore," he says. Now it is more important to be able to lead a team of intelligent people and empowered decision-makers.

The manager-as-coach role may evoke an image of Tommy Lasorda advising Darryl Strawberry on the panache of his home-run trot. But unlike sports, in a changing business environment the coach doesn't drill employees in skills they already know. Instead, the manager and the team are learning together. "Rather than handing down instructions, managers are acting more as facilitators, working with groups to determine what needs to be done," says Sheila Cox, senior manager at consultancy Nolan, Norton & Co. in Boston.

Another fallacy is that electronic-mail and workgroup-computing systems will reduce the need for face-to-face managing. More than ever, managers must adopt a hands-on approach, questioning, counseling and consoling troops in the trenches. "You can't [abandon] people in an empowerment situation. Managers must give employees measurable objectives and feedback," Cox says. The so-called self-managed team is not self-led. (See "The Perils of Power," *CIO*, May 1, 1992.)

Lateral communications—project-related exchanges among workgroups and team members—increase dramatically with distributed systems. But the danger is that without higher-level input, staffers will miss the forest for the trees. Managers must convey and explain the larger business issues—corporate direction and goals—in greater detail than ever. Without this input, decisions of their empowered but underinformed subordinates will be flawed.

To soften the sting of the transition, some companies send managers to classes to prepare them for new roles. Internally, organizations can also try putting managers in charge of technology teams or process-planning groups for early exposure to the coaching concept.

Once managers have embraced these new ideas, companies must adjust their evaluation criteria correspondingly, or risk alienating everyone. No longer should a manager's status or pay depend on how many direct reports he or she has, Southcott says. Now managers will earn their laurels from the experience they build, the performance of the teams they coach and the influence they and their teams have on the organization.

**R**ATHER than handing down instructions, managers are acting more as facilitators, working with groups to determine what needs to be done."

—Sheila Cox



**“YOU COME** to the table as equals, and it’s the result coming out that’s important,” not who’s in charge.

—Marsha Small

In the following profiles, managers at four organizations share their insights into the management costs of client/server and explain how their roles have changed. Each a survivor and adapter, these leaders are more likely to highlight “client/server” on their resumes than blame it as a reason for leaving.

#### **Michigan Department of Transportation, Lansing**

With tax revenues declining and responsibilities growing, the Michigan Department of Transportation (MDOT) began a push in late 1992 to downsize the organization and improve service and efficiency. A total-quality focus and an anticipated 100 percent migration to client/server are at the heart of this strategy. Though the effort is months from completion, managers are already living the effects of the evolution.

“The whole role of middle management is changing dramatically,” observes CIO D. Michael Cleary. “They used to take direction from high up and pass it on. Now roles are much more that of coach or counselor than message carrier.” Managers are focused on educating staff to make decisions, then stepping back and letting them do it.

Marsha Small, manager of the urban-planning section in the bureau of transportation planning, understands that she must allow empowerment to take off. “As we develop these distributed systems, my staff will be less dependent on me, and my comfort level in passing on more responsibility to them will increase.”

In fact, rather than fight the changes, Small has spent much of her time preparing for them. In the last year, she and other managers have led client/server technology-review teams, a strategy MDOT employs to expose managers to the coaching concept, Cleary says. The department has also sent staff and key managers to study their new roles at classes offered by Cambridge Technology Group of Cambridge, Mass. A separate firm, Cambridge Technology Partners, is handling MDOT’s distributed-systems integration.

Small is already exercising her coaching skills by discussing the ins and outs of the new systems and processes with her staff. “I meet with them about things they need to know to be effective,” she says. “But instead of my saying what classes everyone will take, I ask them what they think would help them be more effective in implementing this.” Indeed, managing a team is a very

different focus for Small. “You come to the table as equals, and it’s the result coming out that’s important,” not who’s in charge.

Electronic messaging can’t substitute for one-on-one give and take, she adds. “You can’t just relay information down the line. We’re not robots. We need to meet face to face to hear all sides of the issues.” That’s essential to empowerment, she contends, because the quality of staff decision-making depends on their understanding the reasoning behind department direction, not just the direction itself. It’s her job to communicate that.

#### **The Canadian Surety Co./Canada West Insurance Co., Toronto**

This mid-size property and casualty insurer began decentralizing in 1991 to answer the threat from new, deregulated competitors such as banks. The notion was to improve service by pushing underwriting authority and the required computing power as close to the end customer as possible. The most-dramatic change was not implementing distributed systems but putting those systems in the hands of nonemployees—the independent brokers.

The result has been a drastic change for managers, who find themselves supervising a whole new species. The brokers have their own offices around the country, and they are fiercely independent. To manage this group, management must act “more like liaisons and account managers than policy administrators,” says Calvin Drake, vice president and general manager of broker enabling and regional services at the company, a client of the Toronto Deloitte & Touche office in which Southcott works.

The biggest change will be cultivating and managing a relationship of trust, according to Normand Cournoyer, vice president and regional manager of the company’s Southern Ontario branch in Mississauga. Managers used to talk a lot about trust, but the reality was that they double-checked everything brokers did. Now with the brokers’ increased empowerment, managers must forge partnerships strong enough to render day-to-day reviews unnecessary. “It will take some adjustment, and it will be difficult because trust doesn’t build overnight,” Cournoyer acknowledges.

Part of that adjustment will come in spreading the corporate gospel to these new, remote semiemployees. “We have to do more marketing to pass on proper direc-



tion to the brokers," Cournoyer says. "In the past, they received very little direction from us. Now we have to be very clear."

But successful external communications will depend on senior and middle managers having a clear understanding of just what the company is trying to achieve. "We need to share the same goals before we can communicate them, and that's not something any insurance company is well-known for," Cournoyer points out.

Cournoyer says his toughest challenge is persuading his middle managers that this distributed push is the right strategy. "I have to convince them they have to let go

and that this is the only way to be efficient and competitive. That selling job is the hardest part for me."

While middle managers learn to be more hands-off in overseeing policy underwriting, senior managers like Cournoyer must become more hands-on to properly manage in the distributed setting. They have to get more personally involved, visiting brokers and field staff to learn their needs. "Managers who want to sit in their offices five days a week are gone," Cournoyer says. That includes Cournoyer's predecessor, who failed "to see the scheme of things."

#### **Medical Center of Delaware, Newark**

In 1991, this two-hospital facility (then with three hospitals) was laboring under an unmanageable million-dollar supply stockpile, and introduced client/server-based materials management to bring efficiency to its inventory distribution. (See "The Road to Recovery," *CIO*, January 1993.) For managers, the change would mean different things depending on their level in the department hierarchy. For all it could have been threatening. But Frank Geiger, director of materials management, perceived a bigger threat. "With health-care reform coming, hospitals have to make drastic changes. Those who commit to the changes will find job security; the others will not."

The biggest change in Geiger's relationship with his staff came in the form of letting go. "I had to pull back from the reflex of feeling I have to be hands-on with each project, and be able to trust my managers to handle it," he says. Geiger now spends less time managing day-to-day operations; he is busier consulting with other Medical Center officials on their own reengineering projects and studying ways in which materials management can interface more directly with other departments. For example, he's assisting the operating-room group as it implements a new operation-scheduling system that will link with materials management. He is also working with the radiology department, which hopes to communicate its supply-replenishment needs electronically.

Most of Geiger's middle managers have had to step back from the day-to-day operations as well. The system provides automatic productivity monitoring, determines work priorities and empowers clerk decision-making with enhanced data availability. Consequently, managers can spend more of

**"I HAD TO**  
pull back from  
the reflex of  
feeling I have  
to be hands-on  
with each project,  
and be able  
to trust my  
managers to  
handle it."

—Frank Geiger

## **CHANGING OF THE GUARD**

*To adapt to distributed  
computing and process  
reengineering, managers must:*

- Learn to facilitate and coach instead of dictate and supervise
- Relinquish authority to empowered employees
- Focus on total processes rather than discrete tasks
- Manage relationships with new or nontraditional employees
- Communicate corporate strategy to empowered decision-makers
- Increase face-to-face interaction with staff
- Provide internal selling and counseling to employees struggling with change
- Take advantage of management retraining and team-leadership exercises
- Embrace change of a type that may vary depending on their level in the organizational hierarchy



“Knowledge is power.”

*Francis Bacon*



“Everybody gets so much  
information all day long that they lose  
their common sense.”

*Gertrude Stein*



“If you don’t know where you’re going,  
you will wind up somewhere else.”

*Yogi Berra*

their time analyzing the information the system provides—looking for ways to improve supply procurement or distribution.

On the other hand, for some lower-level, front-line supervisors, client/server has meant more hands-on activity. "Before, they were running around trying to oversee what was happening in receiving," Geiger says. With the system keeping track of workflows, Geiger has reassigned some of these supervisors to the work process, where they can get their hands dirty.

Depending on a manager's level, the type of work that crosses his or her desk has changed as well. For higher-level managers, the blinders have come off as they've begun looking at a wider, total-process picture. "That's because they're overseeing the implementation of processes and focusing on customer needs," Geiger explains.

The opposite can be true for front-line supervisors. They use client/server tools to concentrate on a narrow aspect of the process to ensure accuracy and adherence to standards such as the center's total-quality initiative. It all depends on how high you are on the management totem pole when it's time to carve a new face.

#### **Connecticut Mutual Life Insurance Co., Hartford**

Connecticut Mutual introduced distributed computing and image processing to push decision-making authority down to underwriters, customer-service representatives and business-processing personnel and create a flatter management structure. The ongoing effort, which began in January 1991, has thinned staffing by slightly less than 20 percent in areas in which the new tools were introduced. Those who remain have had their well-worn work routines yanked out from under them like a rug.

As in other changing organizations, senior managers at Connecticut Mutual must shift from a supervisory focus to one of facilitation. For example, in the customer-service area, managers used to monitor calls to check on employees' tone of voice. Now they spend less time on such micro-management and more on areas such as identifying staff-training needs.

They're also being asked to relinquish authority. "We're still trying to get there," says David A. Fravel, vice president of risk selection. In Fravel's area, underwriting decisions that once required a senior manager's signature are now the prerogative of

line managers. The same shift is happening in customer service. "Many employees never used to talk to the customer," Fravel notes. "Today, managers often tell associates how to deal with irate customers rather than handling it themselves."

Probably the biggest functional change is that managers who once supervised dis-

**"HANDS-ON USED TO MEAN COUNTING WORK** in the in and out boxes. Now team members are asking us for one-on-one counseling about how they are doing on shared goals."

*—David A. Fravel*

crete tasks, such as policy-application input, are overseeing and accountable for complete processes, such as the entire customer relationship. It's unnerving for many, but it creates more-interesting jobs for associates and their managers, Fravel says.

Senior managers such as Karen Wetherell, vice president of post sales/customer service, find that their duties include a lot more face-to-face staff interaction. Though she always provided her teams with training and other facilitative services, "now I find I am more likely to be physically in the customer-service center, seeing what anxieties are likely to occur" because of the new systems and related changes.

Fravel, too, sees more need for hands-on management in the wake of distributed systems. "Hands-on used to mean counting work in the in and out boxes," he says. "Now team members are asking us for one-on-one counseling about how they are doing on shared goals."

With all this revisionism, many managers have lived the textbook cycle of denial, anger and acceptance. The firm tried acclimating them through involvement in process planning. "It gives them a sense of ownership and prepares them for what it would take to manage in the new environment," Fravel says.

Clear objectives are also helping managers cope with change. "All management levels need to be acutely aware of the new expectations so they won't make assumptions that it's business as usual," Wetherell explains. The upheavals carry less sting if managers emotionally distance themselves by focusing instead on the desired outcomes. 



# GET move USE IT

Unless you know what to do with it, information isn't knowledge. Or insight. Or the road to profit. It's simply a collection of data.

That's why we want to introduce ourselves to you.

We're a new company with the unique ability to help you get information, move it to where it's needed, and use its insights. A company that provides information solutions which will help you help your customers and run your business more efficiently.

We're truly a new company. And yet we combine the strengths of both *NCR*, a global *computer* company

with unparalleled capabilities in data collection and massively parallel processing, and *AT&T*, the one company capable of allowing you to *communicate* any quantity of information to anyone anywhere in the world.

In the weeks and months to come, we'll be telling you more about the hows and whats.

So stay tuned.

Or call 1 800 203-1529. We'll tell you more.

*Now that NCR and AT&T are one, computing and communications have come together to help you get, move, and use information.*

**"We know exactly where we want to go,  
because our customers will show us the way."**

*Jerre Stead, CEO  
AT&T Global Information Solutions*



**AT&T**

Global Information Solutions





# How To Fortify Against Other Systems Mana

**COMPUTER ASSOCIATES**  
Software superior by design.

The Systems Management Software Of Champions

**INDUSTRIAL STRENGTH**

**CA-UNICENTER**

UNIX   NETWORK   OS/2   MVS   VSE   NT   VMS

MISSION-CRITICAL  
SOFTWARE  
PLAY IT SAFE

**100%**  
OF YOUR SYSTEM'S  
RECOMMENDED  
DAILY ALLOWANCE OF  
**PROTECTION!**

The advertisement features a man in a white shirt and tie, cheering with his fists raised, positioned in front of a large software box. The box is orange and white, with the product name 'CA-UNICENTER' prominently displayed. The background is a solid orange color.



# Backup Disasters And gement Deficiencies.

Now there's a way to eliminate the burden of systems administration. And to protect against security lapses, corrupted or lost data systems failures and backup disasters.

It's CA-UNICENTER®, the industry's most comprehensive systems software from the leading systems software company. Thanks to the graphical user interface, you have the ability to see everything that's going on with your end users — right from your desktop.

And CA-UNICENTER gives you



Resource Accounting



Console Management



Problem Management

absolute control over absolutely everything: security, archival and restore, performance monitoring, workload balancing, problem and change management, charge back — you name it.

Best of all, you can continue to leverage your existing hardware and software investments, since CA-UNICENTER supports a broad range of platforms — from UNIX to OS/2 to Windows NT.

You also have the comfort of

knowing it's backed by CA, which for the last 20 years has had a solid record of service and support.

So why take chances? Play it safe with CA-UNICENTER.

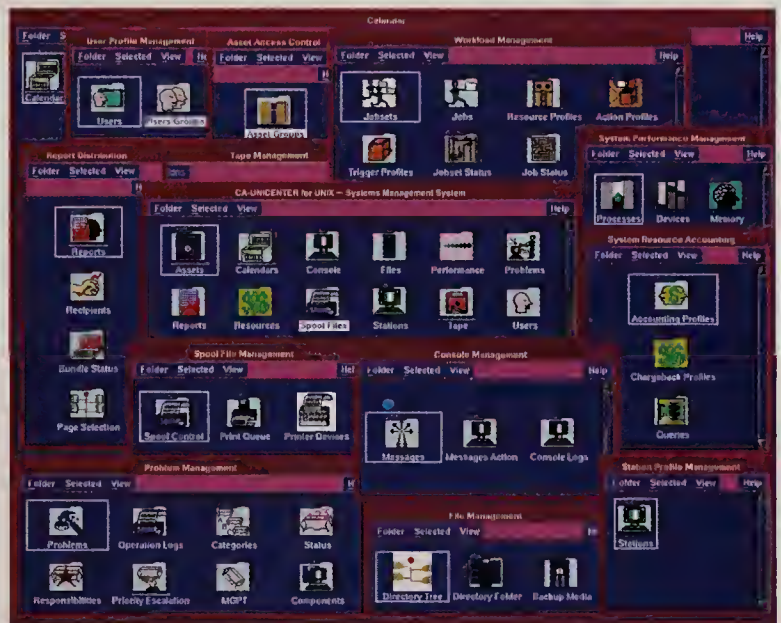
For Information On  
Free Seminars And A Demo Disk  
Call 1-800-225-5224, Dept. 10101.

Learn how CA-UNICENTER can take the risk out of systems management.

And why you shouldn't be running your systems — or your business — without it. Call us today.



**COMPUTER ASSOCIATES**  
Software superior by design.



# CA-UNICENTER®

UNIX NETWORK OS/2 MVS VSE NT VMS

© Computer Associates International, Inc., Islandia, NY 11788-7000. All product names referenced herein are trademarks of their respective companies.



DATA INTEGRITY

# LINES OF DEFENSE





**T**he network-security failure at the Department of Energy's Rocky Flats installation could have cost the United States every design secret in its nuclear-weapons arsenal. Engineers at the plant were tired of the changing password schemes of the secured computer system, so about three years ago they loaded the bomb designs onto an alternative processing platform, a VAX, simply to make access easier.

The engineers could then work free of the impositions of security regimes—and the Soviets could have access to the nation's most-prized military secrets for the cost of a phone call. No hacker broke into the computer. No programmer fumbled some code. This was security sabotage by professionals aware of the value of the exposed data.

Although the level of jeopardy is significantly lower at most corporations, many IS professionals face the same technological and human issues—especially in a client/server environment. Client/server technologies are driving change in business processes—often before IS executives can devise methods to ensure the security of the systems and the reliability of the data and applications that will operate in client/server domains.

Despite these complications, American businesses are converting to client/server at a breakneck pace. A 1993 survey by Deloitte & Touche showed that CIOs intend to more than double the number of client/server applications in 1994.

The new environment is causing grave concerns. Donn B. Parker, senior management systems consultant at SRI International in Menlo Park, Calif., and a leading systems-security proponent, says that at the international conferences he's attended in the past two years, the "highest-level topic is client/server security."

Take heart, though: There are solutions to many of the security and data-integrity challenges that client/server engenders. Vendors are introducing products to close exposures and, paradoxically, client/server's distributed model of computing is presenting storage paradigms that are inher-

ently more impervious to disaster.

Today, developing a secure computing environment is a matter of survival. A study conducted at the University of Texas at Arlington suggests that some 90 percent of companies that lose a large portion of their data in a catastrophic event will not survive longer than a couple of years. More

than at any other time in the history of the industrialized world, the health of the corporation is directly related to the security of its data. IS executives who ignore security issues that client/server presents do so at the peril of their companies.

The broad reach of client/server is a double-edged sword: Far-flung computing power brings processing and data where they're needed, yet extending the frontiers of the computing environment exposes it to new risks. Employees now have the ability to access files better left out of reach. Under client/server, says Parker, "the information-security function has to find new ways to reach and influence what users are doing."

Bill Malik, program director for software-management strategies at the Gartner Group, in Stamford, Conn., tells the story of a Western U.S. state prison that allowed prisoner trustees to use its computer for their daily work du-

ties: for example, to order potatoes for the kitchen. The corrections agency had downsized mainframe applications onto PC LANs and "forgot to revisit the security issues." That was all the opportunity one inventive trustee needed to modify the work-release-program file, with an immediate consequence: prisoner at large.

In this more-democratic client/server environment, CIOs need to divide and conquer to ensure data integrity and security. That starts with planning and rationalizing user access. Harry B. DeMaio, national marketing director of information-protection consulting at Deloitte & Touche in Wilton, Conn., uses a model of access control to "determine and reduce to the lowest-possible number" the people who can access and manipulate specific information in the client/server environment. This means giving users only the data and com-

**Client/server exposes the  
computing environment  
to new risks. Keeping data  
safe and sound is tricky.  
Yet the very features that  
make client/server more  
vulnerable also provide it  
with inherently better  
survival qualities than  
other architectures.**

**BY PETER CASSIDY**







"I've spent a bazillion dollars  
building our information systems.  
So why am I not smiling?"

Now you can unlock the information  
trapped in your enterprise and deliver  
it to your users.

*Introducing Huron—the first  
Distributed Business Information System*

Ten thousand users can't get at the information  
they need, and you're the one they call. It's time  
to get Huron.®

Huron is a revolutionary software system  
that builds and distributes integrated informa-  
tion across corporate desktops, departments  
and divisions.

With a user interface, transaction manager,  
application development and maintenance  
environment in one, Huron turns incompatible  
databases and hardware into a single, enterprise-  
wide information system.

Users gain a consolidated view of critical  
data. And prior system investments coexist  
peacefully with new technology.

Start satisfying the needs of the business and  
your IS community. Evaluate Huron now.

Call Amdahl today at 1-800-447-0044, ext. 200.

*More Power In One*

**HURON**  
from Amdahl









"I've spent a bazillion dollars  
building our information systems.  
So why am I not smiling?"

Now you can unlock the information  
trapped in your enterprise and deliver  
it to your users.

*Introducing Huron—the first  
Distributed Business Information System*

Ten thousand users can't get at the information  
they need, and you're the one they call. It's time  
to get Huron.®

Huron is a revolutionary software system  
that builds and distributes integrated informa-  
tion across corporate desktops, departments  
and divisions.

With a user interface, transaction manager,  
application development and maintenance  
environment in one, Huron turns incompatible  
databases and hardware into a single, enterprise-  
wide information system.

Users gain a consolidated view of critical  
data. And prior system investments coexist  
peacefully with new technology.

Start satisfying the needs of the business and  
your IS community. Evaluate Huron now.

Call Amdahl today at 1-800-447-0044, ext. 200.

*More Power In One*

**HURON**  
from Amdahl



**F**ORTY-TWO percent of respondents regarded inexperienced users as the greatest source of data loss—nearly twice as many as cited database crashes.

client/server system—and what they are doing there. Once the IS staff has identified the population of users, it should limit their access according to their needs and pursue training regimes for each class of users to head off any experimentation.

Securing a client/server environment requires knowing its boundaries, says Noel Matchett, president of Information Security Inc., in Silver Spring, Md., and a former National Security Administration officer.

---

## RESTRAINING DEVICES

*Vendors of security-software tools, application-development packages and even operating systems offer products that make user access easier to control*

- Access-control products offer a wide range of data-security and -integrity features, from sophisticated authentication systems and access routines to automated auditing and encryption. Prices go from a few hundred dollars to several thousand.
- Many popular database- and application-development packages have added "filtering and fire-wall" features that allow administrators to group users according to their levels of access. These programs impose referential security, limiting users to defined menus and making it impossible for them to put muddy, curious paws on restricted data.
- Operating systems are beginning to include security features. Novell Inc. added integrated security features to its NetWare 4 operating system last year, including sophisticated authentication capabilities.
- For companies migrating legacy systems into a client/server environment, Vality Technology Inc. offers a product to help clean up the data and remove anomalies.

—P. Cassidy

That's not so simple in these days of personal digital assistants and laptops. Companies have come to appreciate the expanded frontiers and the exposures they present.

Like many IS executives, Marc Boyle, systems manager at Boyle Transportation, a nationwide hazardous-material trucking firm based in Billerica, Mass., manages in-house user access through the built-in partitioning features of the company's database-development software. But a lot of Boyle's sales agents in the field need dial-up access. This is, after all, a business literally in motion. In those instances, Boyle has designed a special dial-back system using third-party remote-access software.

To maintain a secure system, says Deloitte & Touche's DeMaio, "I have to be able to direct the security issue from the access-control standpoint. I must be able to control access to that information across the entire client/server path. You need to approach this thing from an architectural standpoint."

An increasingly popular approach is to limit users' access to applications and databases through customized interfaces. Log-ons confirm users' identities and then present them with a screen that has been designed to fulfill their needs. Any more power and range has to be negotiated through IS.

Robert Monio, principal at Metrix Inc. of St. Paul, Minn., an application-development firm specializing in systems integration, says his company manages database access entirely through its application-development software, Progress from Progress Software Corp. Monio says that Progress interface-design features allow him to assign different levels of referential security. End users will see only those tools and databases that they are allowed to use. Dial-up access uses the same log-on routines as in-house users, and those working remotely use the same interface they use when they are in the office, Monio says.

Some data-security experts believe that end users should be responsible for securing their own computing environments. "One easy policy to implement: Every application and every data file has an owner," says Matchett. "If you're doing the payroll, you're the owner of that data file. The concept of the owner of both the resource application program and data creates accountability and responsibility immediately."

The old one-hole-in-the-bucket analogy



# IF YOUR CUSTOMER SERVICE SYSTEMS ARE OBSOLETE, YOUR COMPANY MAY SOON BE, TOO.



You know that better than anyone. Because service is your whole business. Today's environment not only requires a new way of thinking about customer relations. It also requires new systems to help you do it.

Like our Customer Care Systems. The most comprehensive, most advanced automation systems for customer service and support, for consumer relations and for help desks. Engineered to be a complete, integrated customer care solution, the Brock system is

designed with an open architecture, so it fits readily into virtually any computing environment. And its power in tracking and managing customer care is matched only by its flexibility. For it can be easily customized to work the way your organization already works. To give everyone in your company access to critical customer information.

We're the leading provider of integrated marketing, sales and customer care systems. Systems that help com-

panies get customers—and keep them. And that's why we've been able to develop a better way to handle what may be the most important function in business today: Customer Service.

Call us for more information. But do it today. Because if your company is still using outdated methods of customer service, you'll soon reach a point where you won't have any customers left to service.

**1-800-221-0775**

**BROCK CONTROL SYSTEMS, INC.**

*The future of sales.™*

© 1992, Brock Control Systems, Inc.



argues that one security exposure opens your database to espionage and vandalism. Client/server, however, doesn't follow this analogy very far, because data can be resident in so many different places, and com-

**N**OW WE'RE ABLE TO ISOLATE AND DEFINE the level of control needed, LAN by LAN. The potential possessors of information can be isolated on a smaller scale than when everyone is connected to a mainframe system."

—Donn B. Parker

panies can impose more-focused data-security routines. "Now we're able to isolate and define the level of control needed, LAN by LAN...", says SRI's Parker. "The potential possessors of information can be isolated on a smaller scale than when everyone is connected to a mainframe system."

Security personnel expend a lot of energy making security protocols transparent to the users, but auditing is one security function that should be very "apparent," says Sanford Sherizen, president of Data Securi-

ty Systems Inc. of Natick, Mass. Auditing programs work as deterrents, persuading employees to honor security protocols—instead of trying to bypass them a la Rocky Flats.

"Let the users know there are automated mechanisms for reviewing their work, looking for unusual or inappropriate activities," says Sherizen. "And let them know that misuse—sharing of passwords, copying of programs, release of proprietary information and other illegal or inappropriate acts—will be found, and management will make appropriate decisions including, in some cases, pressing charges."

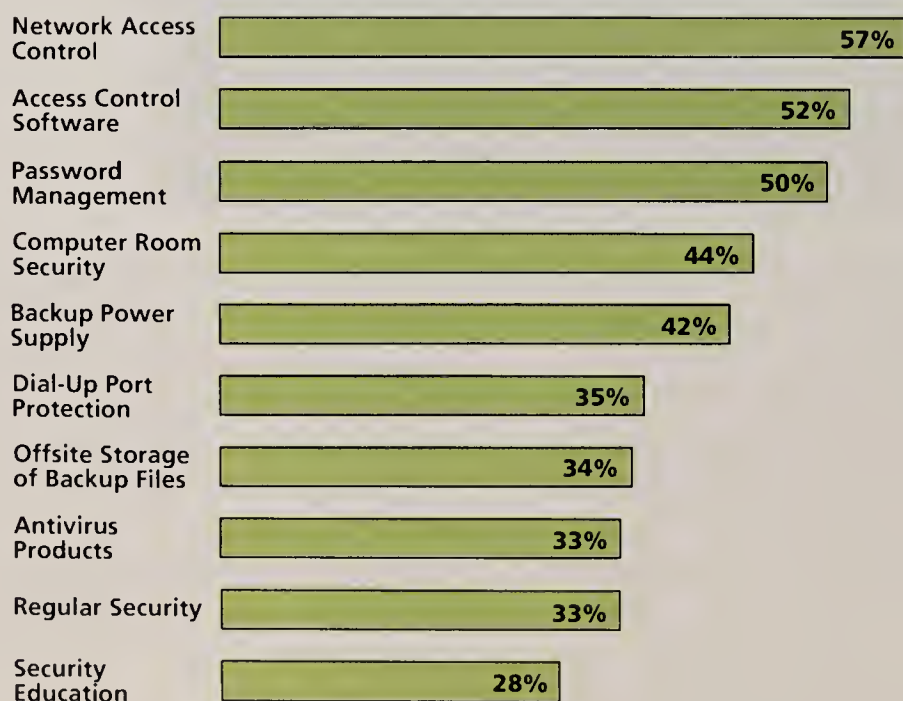
Encryption may be the most-straightforward approach to securing highly sensitive or confidential data. Someday it may be as simple to use as a gummed envelope, but "until it is built into an operating system, it is kind of tough," says Matchett. Each cryptographic product has an engine—either a hardware black box or encryption software—and keys, strings of characters, that are combined with the engine to create encrypted files. Making sure the keys are not intercepted while they are being delivered—by courier or through a secured transmission regime—is vital. Just as important, Matchett says, is making sure the keys are destroyed when they have been superseded by new keys.

New software, encryption systems, secured servers and all manner of computer integrity and security technologies can impose substantial costs over and above the time expenditures of the systems and security personnel. Analysts say some of the oldest complaints from IS staffs are getting their boards' attention and persuading them to spend money on things that have no immediate bottom-line impact.

Fire a couple of hundred people and stocks prices will ascend, but successfully harden your systems against intrusions and the most-dramatic thing that can happen to prove the strategy's wisdom is...nothing at all. In a foundered economy, security and integrity are not going to be easy to sell to financial officers. But the demands of client/server require that IS executives be prepared to try. **CIO**

*Peter Cassidy is a technology writer whose work has appeared in newspapers, magazines, trade journals and industrial analyses in North America and the West Pacific. His E-mail address is pcassidy@world.std.com.*

## MOST USED DATA NETWORK SECURITY MEASURES



*Out of a choice of 20 security measures identified, the 10 most implemented measures respondents selected are listed. Base=747 (total sample).*

Source: Datapro Information Services Group, Computer Security Issues, 1993

# Finally,

You've probably noticed. Most Pentium™ processor-based PCs

# a PC

don't perform much better than machines with i486™ chips.



# that not only has a

That's not surprising.

Most PCs use inefficient buses that sit on

means sluggish programs start to fly. Graphics snap onto the

for just \$3,699\*.

Why would you buy a pent-up box, when you could go way beyond that with a hot DECpc XL 560 or 566?

You wouldn't.

Call 1-800-316-4907.

Please reference BTP when you call. 8:30 a.m. to 8:00 p.m. Mon-Fri ET.

# Pentium™ chip,

top of the processor and bog it down. They simply aren't designed to

screen. High-speed peripherals kick into gear. Power-sucking

# but can actually use it.

make the most of the Pentium chip.

The DECpc™ XL 560 and 566 are.

Their high-speed PCI bus unburdens the CPU, unleashing up to 66 MHz of Pentium processor power. That

applications start moving again. And your productivity skyrockets.

Technology Made Easy.

We didn't just take the load off the Pentium chip. We also took the strain off your budget. You can get a Pentium technology DECpc XL



**digital**™

**PC**

Beyond the box.

\*Monitor not included.

©DIGITAL EQUIPMENT CORPORATION 1994. The DIGITAL logo and DECpc are trademarks, and Beyond The Box is a service mark, of Digital Equipment Corporation. Pentium, i486 and the Intel Inside logo are trademarks of Intel Corporation.



## VENDOR VIEWPOINTS

## TO OUR CLIENTS

WITH BEST WISHES,  
FROM THE SERVERS

The chief executives of four software firms weigh in with their best estimates—abetted by some analyst annotation—of what the client/server future holds in store

BY DAVID H. FREEDMAN

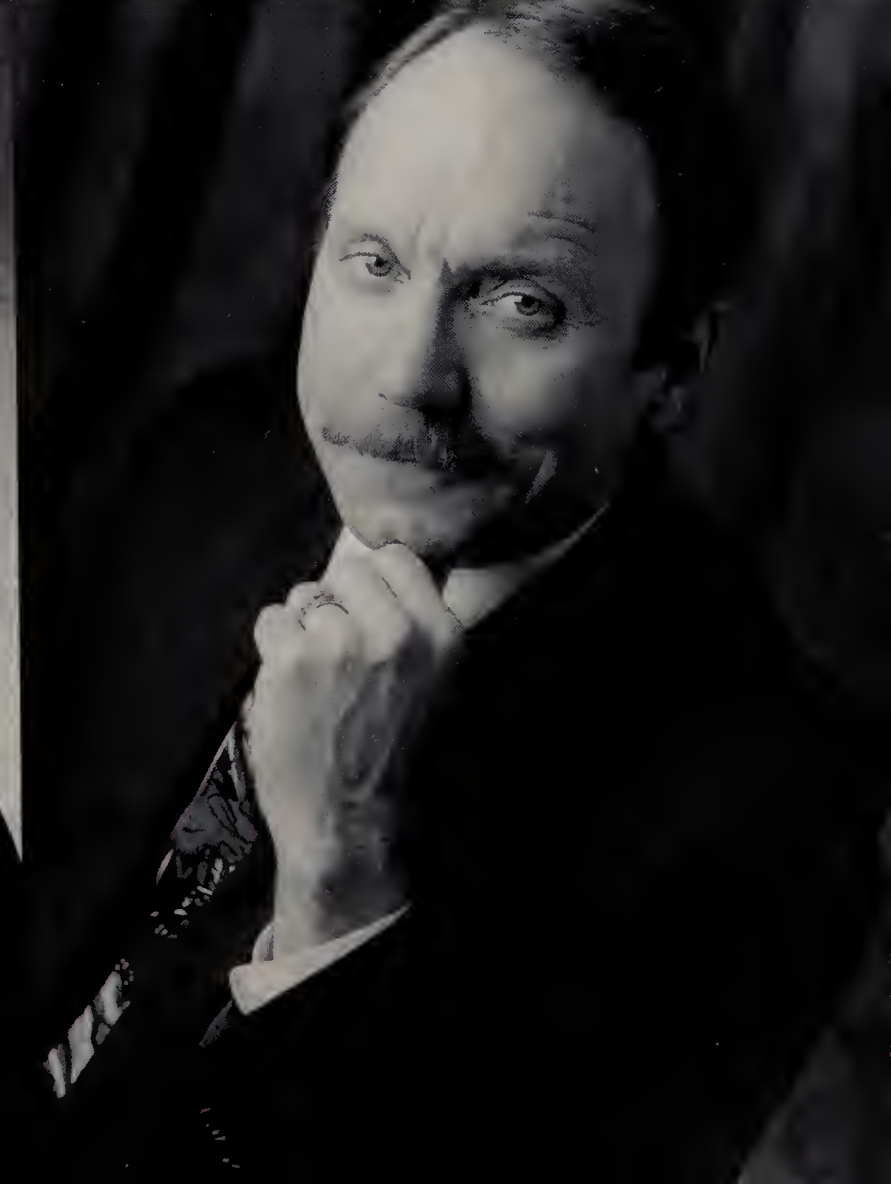
It wasn't all that long ago that the power to define the computing options available to businesses was largely concentrated in just two very large vendors. Since then, of course, the market has wrenched that control away, and now no IT vendor—not even Microsoft—can avoid having to

bend to the customers' needs rather than the other way around.

These days, the needs tend to run in the direction of client/server computing. Since vendors' success depends ultimately on their ability to identify and interpret these needs, *CIO* decided to ask four CEOs of client/server software vendors to describe what they see as major upcoming trends in the client/server arena.

The four vendors, picked with advice from industry analyst Donald DePalma of Forrester Research Inc. in Cambridge, Mass., represent a variety of industry niches and perspectives: Sybase Inc., in Emeryville, Calif., specializes in the server database-management systems (DBMSs) that make up the back end of client/server systems; Gupta Corp., in Menlo Park, Calif., provides a range of client/server development tools; New York-based Brown-Stone Solutions Inc. focuses on "repositories" that help track and manage the construction and growth of client/server

VENDOR VIEWPOINTS: *Whither client/server?* LEWIS STONE (clockwise from top left), UMAN GUPTA, MARK HOFFMAN and BRADFORD WILD discuss their companies' directions.





systems; and WildSoft Inc. is a still-tiny New Hampshire startup in the process of bringing out tools that allow mobile-computer users to tie into client/server networks. (CIO also pursued an interview with Oracle President and CEO Larry Ellison, but the DBMS vendor was unable to make him available.)

Besides soliciting the CEOs' views on their respective directions in client/server development, we also asked Forrester's

**“WE HAVEN'T SEEN MANY BUSINESS-MODEL-  
ing tools that let you spend most of your time defining  
the business and less of it writing programs—instead of the  
other way around.”**

*—Mark Hoffman*

DePalma to provide his own take on the challenges—and caveats—the vendors and their customers must contemplate in navigating these uncertain transitions.

## **S Y B A S E**

**The company:** Sybase was a client/server pioneer among vendors: Its SQL Server, brought out in 1987, was the first relational database-management system (RDBMS) to



**MARK HOFFMAN**

distribute functionality across PCs and workstations in a client/server fashion. The company continues to play a prominent role in the client/server arena. According to a survey conducted last year by Forrester Research, 40 percent of Fortune 1000 companies named Sybase as their intended choice for a strategic client/server DBMS (Oracle was in second place at 28 percent). In 1992, the company brought out System 10, a new RDBMS aimed at handling larger applications, and its new Enterprise series of tools for addressing various aspects of application development.

**The view from the top:** Customers are beginning to demand vast improvements in client/server software, contends Sybase

CEO Mark Hoffman. This demand is driven not so much by the increasing popularity of client/server computing, he says, but rather by its gradual elevation in scope to large-scale, mission-critical applications.

“Even companies that question the cost savings of switching to client/server architectures recognize that these architectures provide the flexibility they need to respond to rapidly changing business environments,” says Hoffman. But so far, he notes, the client/server arena has lacked the sorts of high-powered management and development tools that make the mainframe environment relatively bulletproof when it comes to running heavy-duty, critical applications.

“System administration has been a real problem in the client/server environment. And we haven't seen many business-modeling tools that let you spend most of your time defining the business and less of it writing programs—instead of the other way around.” Hoffman says these are areas that Sybase addresses in its recent and upcoming Enterprise product offerings; future products will even allow users to specify business functions at a high level and enable the tools to automatically generate client/server applications. “I'm not talking about doubling programmer productivity,” he says. “I'm talking about increasing it by 10 to 20 times.”

**DePalma's take:** Hoffman is correct in pointing out that new generations of client/server applications will need new generations of tools. “These applications are going to increasingly require support for the full application life cycle, from prototyping to sun-setting,” says DePalma. “Client/server applications may not have the eight- to 10-year tenure of mainframe applications, but they'll be around for two to four years, and you might have to do a phenomenal amount of maintenance and enhancement in a four-year period.”

What's more, he adds, these tools are more likely to come from vendors that specialize in client/server products and know the market needs well rather than from mainframe software vendors trying to break into the client/server arena. But he also wonders whether Sybase, or any other DBMS vendor, will be able to take a leadership role in meeting these new needs, given the specialization that has emerged among vendors of client/server software.

# Send It To Me.

Name \_\_\_\_\_

Title \_\_\_\_\_

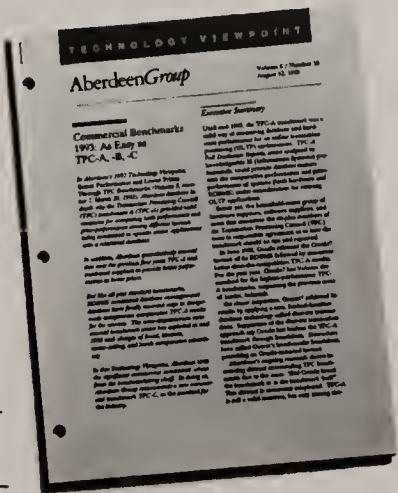
Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_







NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

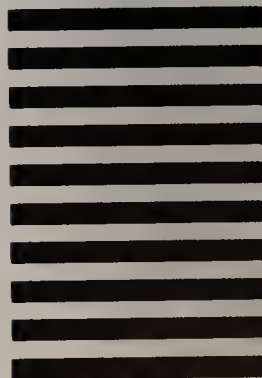
# BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 25 MENLO PARK, CA

POSTAGE WILL BE PAID BY ADDRESSEE



Informix Software, Inc.  
Aberdeen Report  
4100 Bohannon Drive  
Menlo Park, California 94025-9905



# Send It To Me.

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_

## TECHNOLOGY VIEWPOINT

Aberdeen Group

Volume 6 / Number 18  
August 13, 1993

### Commercial Benchmarks 1992: As Easy As TTC-A, B, C

In October 1992 Technology Viewpoint's Source Performance and Leave Behind Through TPC Benchmarks (Volume 6, Issue 7, Number 18, 1992), Aberdeen Group's depth into the Technology Viewpoint's Commercial TPC Benchmarks A, B, and C provided valid measures for comparing both performance and price performance among different systems (and companies) in specific areas of agreement with a selected business.

In addition, Aberdeen quantitatively ranked the top 100 private sector TPCs of each measure against its private sector performance in these areas.

For the all-time record, Aberdeen's selected selected Aberdeen Group's capabilities have finally received recognition through competitive comparison TPC-A results for the industry. The non-quantitative measures for the industry have also been applied to and ranked Aberdeen Group's performance in the same areas of agreement with a selected business.

In the Technology Viewpoint, Aberdeen also the significant commercial benchmark which the Aberdeen Group's depth into the Technology Viewpoint's Commercial TPC Benchmarks A, B, and C, as the standard for the industry.

### Executive Summary

Until mid 1992, the TPC-A benchmark was a valid way of measuring business and performance for an entire business process (OLTP) environment. TPC-A had Aberdeen Group's depth into the Technology Viewpoint's Commercial TPC Benchmarks A, B, and C provided valid measures for comparing both performance and price performance among different systems (and companies) in specific areas of agreement with a selected business.

Since then, the benchmark name group of business systems, software applications, and more than measures the top 100 private sector TPCs of each measure (Volume 6, Issue 7, Number 18, 1992).

In June 1993, Aberdeen's depth into the Technology Viewpoint's Commercial TPC Benchmarks A, B, and C provided valid measures for comparing both performance and price performance among different systems (and companies) in specific areas of agreement with a selected business.

On clear September 1993, Aberdeen's depth into the Technology Viewpoint's Commercial TPC Benchmarks A, B, and C provided valid measures for comparing both performance and price performance among different systems (and companies) in specific areas of agreement with a selected business.

For the all-time record, Aberdeen's selected selected Aberdeen Group's capabilities have finally received recognition through competitive comparison TPC-A results for the industry. The non-quantitative measures for the industry have also been applied to and ranked Aberdeen Group's performance in the same areas of agreement with a selected business.

In the Technology Viewpoint, Aberdeen also the significant commercial benchmark which the Aberdeen Group's depth into the Technology Viewpoint's Commercial TPC Benchmarks A, B, and C, as the standard for the industry.



"Sybase has positioned itself to be a top-notch data-mover, but so far I'm less impressed with their development tools," he says.

He is also skeptical about the idea of sticking high-powered business-modeling tools on top of client/server application-development efforts. "One of the guiding notions of client/server computing is that you get an immediate return on your technology investment," he explains. "If you have to sit in an information-engineering, mega-modeling environment to figure out every detail of how your business operates before you can start building an application, forget it."

## GUPTA CORP.

**The company:** Like Sybase, Gupta was early into the market with an RDBMS for client/server computing. But Gupta has become a leader more on the strength of its



UMAN GUPTA

tools, of which the most prominent is the SQL Windows application-development environment. The company has also had an impact with Quest, a tool for end-user data access, querying and reporting, and the SQLNetwork family of products for integrating server environments from different vendors.

**The view from the top:** President and CEO Uman Gupta emphasizes the complexity that enterprisewide applications add to the client/server arena. Whereas early

radically different types. "Client/server tools have not been geared to support building airline reservation systems and utility billing systems," he says.

He believes that new generations of tools—some just now emerging—will provide workgroup collaborative features as well as object-oriented features and code reusability. But perhaps the most important new enhancement will be the ability to easily incorporate wide-ranging and complex data types as free-form text, audio and video—all available to programmers through a single graphical interface.

"I can envision a real-estate application where you can zoom from a map of the United States down to a city, to a neighborhood, to a floor plan of a single house, with the information all coming from different CD-ROMs," he says. "Programmers need to be able to combine these different types of information at a high level."

**DePalma's take:** Gupta's introduction of team capabilities to client/server application development is timely, says DePalma. He notes that a Forrester survey last year indicated that some 60 percent of Fortune 1000 client/server applications were for a single department's decision-support system and that 92 percent accessed only one database. "These were toe-dipping, tire-kicking applications. This year we're going to see the deployment of multiple-server applications for 1,000 users or more. They won't be developed by Moe, Larry and Curly down the hall, but by teams of developers that would put a strain on the conventional client/server development tools."

But DePalma also cautions against lumping all large applications together, especially under some form of the "enterprise" term. "The 'E' word is going to be the most abused term of 1994," he says. The problem, he thinks, is that even with new generations of tools, such as those now coming from Gupta, some applications will still be out of reach for client/server environments. In some cases, he says, the transaction-processing volumes are too large; in others, the applications are so complex and specifically tailored to a particular main-frame environment that it would be extremely difficult to integrate them into the client/server application.

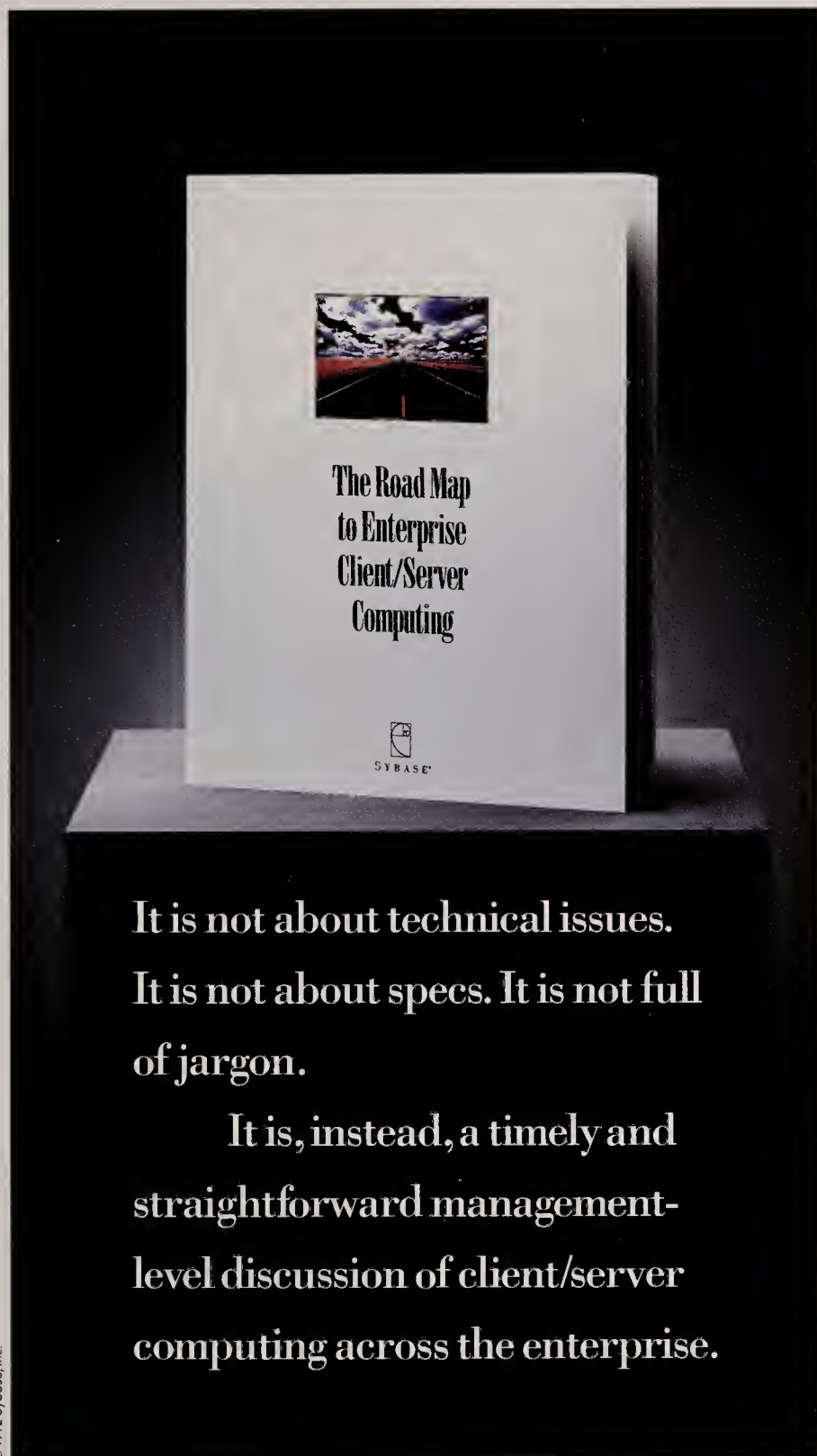
"When Gupta and Sybase and other vendors walk in and start talking about 'enterprisewide' and 'mission-critical' applica-

**"CLIENT/SERVER TOOLS HAVE NOT BEEN geared to support building airline reservation systems and utility billing systems."**

*—Uman Gupta*

client/server applications were typically small applications written by a few programmers and built around one or two relational or other simple databases, Gupta says the new applications will require teams of hundreds of programmers and might integrate dozens of sources of data of

# For your personal copy,



It is not about technical issues.

It is not about specs. It is not full of jargon.

It is, instead, a timely and straightforward management-level discussion of client/server computing across the enterprise.

© 1992 Sybase, Inc.

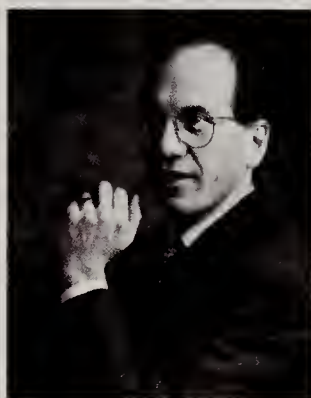
## call 1-800-8-SYBASE.



tions, you'd better make sure your idea of enterprisewide and mission-critical is the same as theirs."

## BROWNSTONE SOLUTIONS

**The company:** Founded in 1987, BrownStone Solutions has always specialized in repositories that help information technology managers maintain data and development standards, as well as keep detailed



LEWIS STONE

records of hardware, software, data and networks. Until recently, BrownStone Solutions, like other repository vendors, offered its products for mainframe environments only. Last year, however, the company started shipping client/server and mainframe-based repositories that track client/server development and data. And later this year, BrownStone says that it expects to ship fully standalone client/server-based versions.

**The view from the top:** Lewis Stone, BrownStone's managing director and co-chief executive (with fellow co-founder Barry Brown), contends that a sound

**“WITHOUT CENTRALIZED TRACKING AND control, companies will end up with worse chaos than [that which arose] from the proliferation of minicomputers in the early 1980s.”**

—Lewis Stone

client/server repository approach will smooth over many of the difficulties companies encounter in the course of upsizing client/server applications.

“Client/server computing is a double-edged sword,” says Stone. “You get great productivity, but all of a sudden everybody is a systems developer and administrator, tinkering with their own applications. Without any point of centralized tracking and control, companies will end up with worse

chaos than [that which arose] from the proliferation of minicomputers in the early 1980s.”

If client/server repositories are implemented properly, Stone maintains, they will help companies manage the growth of client/server systems without introducing the problems of bottlenecks or unwanted interference.

In addition, he says, client/server repositories will be far more useful than their mainframe counterparts ever were—largely because everyone in an organization, from the CEO down to the clerks, can take advantage of the easy point-and-click operation of graphical user interfaces. “A repository can tell a manager in one click whether a sales figure came from the field or the head office, and when it was last updated,” Stone says.

What's more, he notes, repositories will eventually be incorporated into development tools, so capturing necessary information and enforcing standards will be automatic.

**DePalma's take:** Repositories are indeed becoming critical to the expansion of client/server computing, DePalma agrees. “As we move into larger-scale, give-me-data-and-I-don't-care-where-it-is applications, companies have to worry more and more about managing and controlling access,” DePalma says. “You don't want the query from hell being run against your production database; nor do you want everyone in the company snagging everyone else's salary records.”

He seconds Stone's contention that client/server versions of repositories must be designed to be easier to use, and not just for information technology managers. “The whole notion of distributed computing is to put the management and understanding of the capabilities out where they're being utilized,” he says.

DePalma says that his only doubts on the matter relate to the question of whether a historically mainframe-oriented company, such as BrownStone Solutions, can make the transition to the client/server market. “The difference in the needs of this market may mean that this sort of product has to come from companies that have been dedicated to client/server computing from day one,” DePalma explains. “And a lot of those companies are working on repositories.”



# You Can't Manage Your Network, If You Can't Manage Your Power.



The issue isn't just  
power protection  
anymore. When it

Powerware Network Management Solutions

provide power management  
for Ethernet and token rings



comes to complete network power

management, look to

Powerware® Solutions from

Exide Electronics. New

power management

solutions that offer UPS

technology and software

compatibility for high

performance networks. OnliNet® Network

Power Management Software has

real-time monitoring, shutdown,

event logging, and remote control

that extend far beyond the simplistic monitoring of

typical UPS add-on software.



running **SNMP**.

Novell, UNIX, OS/2, and

Windows NT solutions are

backed with unequalled

expertise and a

worldwide service group.

If managing your network

is more important than just running

it, get the only UPS system capable of

doing it. Powerware Solutions from Exide Electronics.

*For a free video introduction to Powerware Solutions for  
Network Power Management, call us or return the enclosed card.*

**1-800-554-3448 X579**

**EXIDE ELECTRONICS**

*Helping You Stay In Power®*

8521 Six Forks Road, Raleigh, NC 27615 • 919-872-3020 • 800-75-EXIDE FAX • International: 919-870-3150 • 919-870-3300 FAX





**E**VERYONE thinks of client/server environments as being relatively inexpensive, but when you factor in the networking hardware, maintenance and administration costs, they could end up being a lot more expensive than mainframes ever were."

—Bradford Wild

## WILD SOFT

**The company:** Startup WildSoft doesn't have a product yet, but later this year it expects to bring out its first shot at "mobile middleware"—software designed to allow



BRADFORD WILD

out-of-the-office employees to use client/server applications by occasionally tying in via phone and sharing data in bursts. The technology could conceivably be useful in some nonmobile applications as well.

**The view from the top:** WildSoft CEO Bradford Wild sees at least one unpleasant surprise lurking in the explosive growth of client/server computing: the high cost of runaway communications demands. In conventional client/server systems, the client is constantly exchanging data with the server. That's fine, Wild says, as long as the volume of data is modest—as it has been for most client/server applications so far. But after multimedia data, PostScript files and mass E-mailings with attached files are added to the mix (and multiplied as well by many more applications being used by many more people, both inside and outside of companies), the network is destined to get out of control.

"Everyone thinks of client/server environments as being relatively inexpensive," he says, "but when you factor in the networking hardware, maintenance and administration costs, they could end up being a lot more expensive than mainframes ever were."

The solution, says Wild, is a new paradigm for client/server environments: Instead of assuming that clients and servers are connected by infinite, constantly available bandwidth, add intelligence to both sides that uses connections more sparingly. That is, maximize the amount of processing that both client and server can do without needing to communicate, and then connect only intermittently to transmit highly compressed bursts of data when necessary.

Wild believes that such a model becomes especially critical in the context of mobile computing—whose rapid growth will soon

bring this issue to the fore in many companies. "Organizations are becoming obsessed with getting their workers out of the office and into the field to be with customers and suppliers. These people will need to make use of client/server applications at least as much as anyone else." However, since the cost of a constant cellular, infrared or radio connection is generally prohibitive, the "bursting" approach will be essential.

**DePalma's take:** Networking demands are going to grow quickly as client/server applications push out not only into every corner of the company but also out into customers and suppliers. "It's a natural extension of the idea of client/server computing," DePalma says. But he doesn't buy the claim, oft-heard from vendors, that multimedia and other bandwidth-intensive applications will soon run rampant on these networks.

"Multimedia is great for applications like 'KidsZoo,'" DePalma says, "but when I see vendors showing up with multimedia maps of employees' offices, I have to advise companies to carefully consider what benefit they will get from the technology." While he agrees that some applications, such as CAD, will certainly require higher bandwidth, such applications can easily be provided with their own separate, higher-bandwidth connections.

DePalma does, however, believe that WildSoft has a great niche in mobile client/server computing. "It won't be practical to carry around the volumes of data some of these mobile applications will require. I expect to see single-user versions of database servers running on PC mutants, like an Apple Newton, that you periodically uplink to the database back home. It's perfect for mobile salespeople, where data being 'current' means as of this morning, not as of this second."

DePalma says that at a recent conference of senior executives, a quick hands-up poll of the audience indicated that more than one-quarter had some sort of computer or electronic organizer with them. "You see everyone typing away on planes now, making use of time that used to be lost," he says. "But after a while, you feel like saying to these guys, 'Hey, take a little time off. Get some sleep.'" 

David H. Freedman is a freelance writer based in Brookline, Mass.



# RemoteWare,

## and the CONVERSION OF JARED FARRELL.

A skeptic  
FROM WAY BACK,

Jared Farrell the  
Salesman had out-  
lived more than

one attempt at automating field communications.  
The near-daily software updates. Nightly commu-  
nication sessions that didn't. Inventory that wasn't.  
Prospects that...weren't.

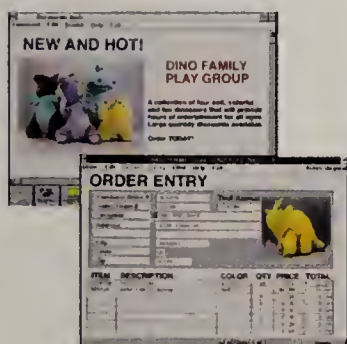
So the fact that something called RemoteWare®  
had been implemented to **automate sales processes** for  
farflung laptop jockeys like himself had held little charm  
for Farrell. A client/server system built with software  
tools already happily in use in hundreds of large companies world-  
wide, with automated dial-up communications for transporting centrally-created  
between home office legacy systems and even the most remote PCs? Terrific. Plus routing and query facilities to make sales-  
critical information simple to get and easy to use...on the road. Excuse me?

But within just days of the fading hook shot that sent the CIO's announcement  
memo into Farrell's round file, he was using the new applications **electronically dispensed by**  
**RemoteWare.** Entering daily orders, filing expenses, and penning a humble note of thanks  
to the CIO, from 30,000 feet. All quietly and automatically delivered by RemoteWare while he  
slept. A fitting complement to the inimitable selling routine of one Jared Farrell. Indeed.

Now, as he slid into the Central Office Staff Room six months later and five minutes  
late, Farrell watched the eyes of the room swivel towards  
him, like half a volley at Wimbledon. And the CIO and VP  
of Sales were headed his way with...a plaque?  
"Jared Farrell, Salesperson of the Year," it read.  
Salesperson of the Year. **Imagine that.**



©1994 XCELLENET, INC.



**XCELLENET®**

AUTOMATING REMOTE POSSIBILITIES.

FOR INFO, CALL 1-800-322-3366.



# Golden Gateways

Moving to client/server makes it difficult to get at and work with legacy data. But there are a number of viable options and strategies that preclude having to rewrite the universe.

BY JOHN EDWARDS

**W**hen your late Uncle Wilbert leaves you a legacy of \$15 million and a Panamanian banana plantation, you feel like jumping for joy. When your corporate predecessors bequeath you a legacy of vintage mainframe and minicomputer databases, you might feel like jumping out the nearest window.

As organizations embrace client/server technology, they face the problem of how to deal with legacy systems. Giving network users fast, reliable and easy access to information stored on trailing-edge systems is a desire shared by CIOs, managers, network administrators, end users and vendors alike. Finding the best way to provide such access is a quest that can confuse nearly everyone involved.

To deal with the problem of getting at legacy data on older, usually host-based systems from a distributed environment, vendors have developed a new class of products informally known as "middleware." That designation covers a wide range of communications, program-access, data-access and other client/server-to-old-iron

workaround tools. In the database world, the term applies to products that are installed between the legacy database and the client application. In such instances, middleware components serve as translators, converting the user's request into material the database can understand and the client application can use.

Dianne Bozler, director of Los Angeles-based USC Software Systems, the software-development and -research arm of the University of Southern California, notes that there are many "right" ways to access legacy data from a client/server workstation, depending on such factors as the type of data, the host computer, the specific client/server environment and the ease of access required. "It's rarely a one-size-fits-all solution," says Bozler.

The first step is to conduct an IS inventory and develop a game plan, says Bozler. List the organization's hardware and software resources and the kinds and quantity of data to be accessed. Then determine why the data must be accessed, who will use the information and where the data is currently stored. "With this information in front of you, you'll have a better understanding of the job at hand and will be able to match up the products that meet your exact needs," she notes.

Now is the time to reexamine the organization's fundamental data needs, says Richard Buchanan, analyst of computer strategy service at Forrester Research Inc. in Cambridge, Mass. "If you put on your business-process reengineering hat, you often discover that 75 percent of the legacy data that you believe you need really isn't critical to your future business needs," he says.

Organizations should sever dead legacy data from the information users need to access on a regular basis, Buchanan says. Once a database





# Here's the bottom line on Unisys services. Your bottom line.

The bottom line for any customer is—the bottom line. So it shouldn't be surprising that Unisys Services focus on exactly that.

With decades of experience serving business and government, Unisys is committed to a bottom-line test: *unless an information systems plan is designed to serve the customer's business plan, it amounts to little more than technology for its own sake.* Supplying technology is not the object. Applying technology is.

That's why our systems integration services help you wring full value from your investment by making your many systems work cost-effectively together. It's why our consulting services harness technology to business goals, not the other way around. It's why our application development process helps identify desired cost-saving and revenue-generating results before we design the



applications on which those results will depend. It's why our education services teach customers how to optimize the

relationship between people and technology. It's why Unisys outsourcing enables customers to lower costs and sharpen competitiveness.

**UNISYS**  
We make it happen.

Call us at 1-800-874-8647, ext. 187.  
Ask how Unisys Services can help your business. It's our bottom line.



has been reduced to its essential core, the CIO might decide that it's small enough to be cost-effectively rewritten to a client/server relational-database model. "You'll then have your critical data residing on a modern database on modern distributed servers," he notes. The rest of the data can be safely archived in case of future need. If the legacy data is still too extensive for a wholesale rewriting effort, then management must look for a suitable middleware solution.

IS professionals who have not examined the middleware market recently may be surprised by the range of products that are currently avail-

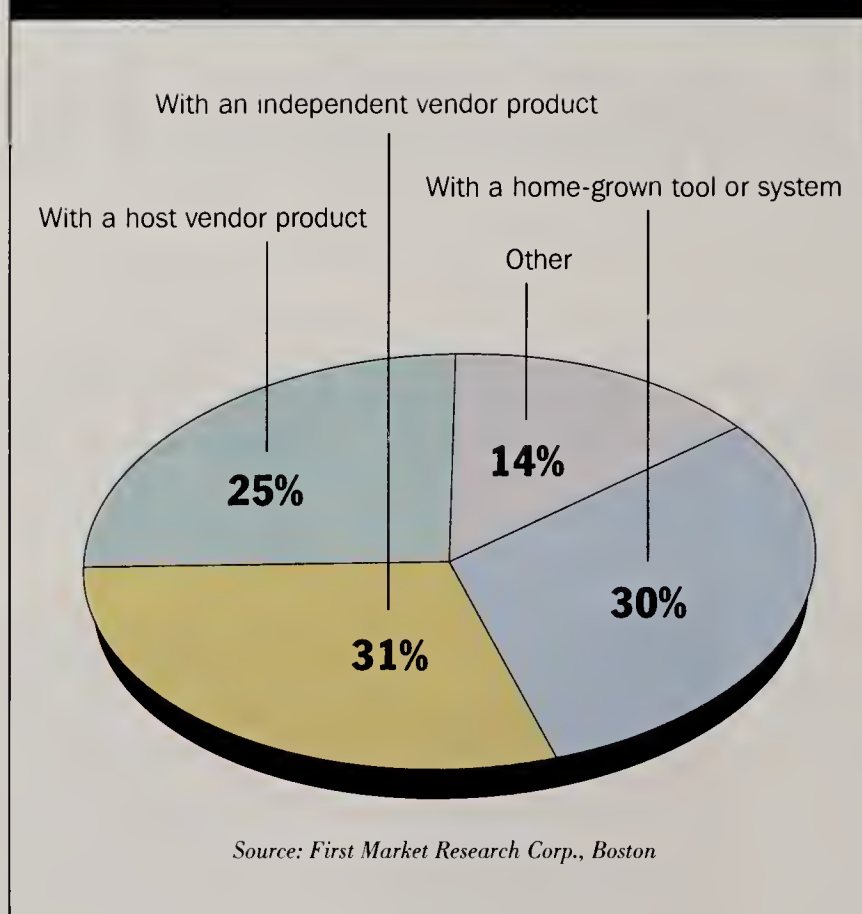
able. Vendors have been quick to recognize the need for legacy-data access and have jumped onto the middleware bandwagon en masse.

Middleware solutions come in all shapes and sizes. Some products are offered by host vendors; others are provided by an increasing number of third-party companies. In addition, more than a few organizations struggling with legacy data on client/server networks have decided to find the answer on their own. They do this by unifying their databases and platforms through reengineering, developing their own legacy-access solutions in-house or contracting with an outside company for a custom-designed middleware product.

One popular approach is the use of universal gateways. These products offer access to a wide array of databases on a variety of platforms. Data continues to reside in the old databases; the gateway serves as a translator and mediator, enabling client workstations to access the legacy data as needed. The key advantage is that the IS professional can move data among different types of systems without purchasing and installing multiple middleware products.

Universal gateways are currently the most-popular way of accessing

## WAYS USERS ACCESS LEGACY DATA



legacy data, says Stephen Hendrick, an analyst at International Data Corp. (IDC) in Framingham, Mass. Products such as EDA/SQL, from New York-based Information Builders Inc., offer a set of database interfaces, tools and facilities that manage and provide access to enterprisewide data. The programs are designed to work together to provide SQL-based access to relational and nonrelational data from PCs, workstations and terminals. EDA/SQL "provides a fairly high level of connectivity," says Hendrick.

But while universal-gateway access appears to be the Swiss Army knife of middleware products, it has shortcomings. Most important, universal gateways tend to provide less-robust performance than competing point-to-point gateway solutions, which offer access to a defined type of legacy database. Installation of universal gateways can also be more problematic because these products aren't "pretuned" to work with specific types of legacy databases.

Gateway usability varies widely among both universal and point-to-point gateway products, says Hendrick. IS professionals should carefully study vendors' spec sheets in order to understand exactly what a product can and cannot do. "There are vary-

ing degrees of transparency, from products that point you in the right direction to packages that understand all the semantic differences between dialects," Hendrick says, adding that for the most part, point-to-point gateways are the easiest to implement and use.

Forrester's Buchanan agrees. "Where performance is really critical, you're usually looking at some kind of database-specific middleware that allows a variety of clients to access a database engine." On the whole, unless one is juggling a large number of databases and platforms, it's usually better to acquire and install a set of different point-to-point gateway tools than

a single universal-gateway product.

Another part of the legacy-data-access market that bears watching involves application program interface (API) technologies. These products can be tricky to implement since they require compliant database products and extensive vendor support. The market is currently divided between Microsoft Corp.'s Open Database Connectivity (ODBC) standard and the Independent Database Application Programming Interface (IDAPI), jointly developed by Borland International Inc., IBM Corp. and Novell Inc.

ODBC provides a set of functions linking Microsoft Windows applications to back-end SQL servers. The technology works by supplying a generic set of SQL calls supported by all database vendors that use ANSI-standard SQL. Similarly, IDAPI uses a set of SQL functions to provide access to back-end databases. According to Microsoft, more than 80 database-software companies have already pledged support for ODBC. IDAPI proponents also claim growing industry support.

Unfortunately for IS professionals who need to reach legacy data on a mainframe or minicomputer, ODBC





Working alone, it would take this man his entire working life (40-50 years) to completely repaint the 10,000,000 sq. ft. Golden Gate Bridge.

## **Client/Server projects go on forever without team-programming from Gupta.**

Client/server computing promises flexible, responsive business systems, but delivering can be an endless chore. Too big for one person, client/server projects require multiple developers, end-users and managers to work as a team. Only Gupta SQLWindows® marries a productive, graphical PC development environment to comprehensive group programming facilities.

### **We make your group a team.**

SQLWindows provides version control, check-in/check-out and project management to unify the efforts of programmers. End-users can help prototype screens, forms and reports through our easy QuestWindow™. And our open, repository-based system can exchange data with many CASE tools, streamlining management of even the biggest client/server applications.

### **Cut any client/server project down to size.**

The team facilities of SQLWindows are matched by a rich, object-oriented, graphical development environment and comprehensive database connectivity. Put your endless client/server projects on a schedule with the team productivity and sheer power of SQLWindows. Call **1/800-876-3267 ext. 101** for your free demo disk today.

# **GUPTA™**





doesn't support host-based legacy databases. IDAPI, on the other hand, can work with host-based legacy systems when used with appropriate IDAPI-compliant database drivers. "Microsoft is trying to position ODBC as the standard API for database middleware," says Buchanan. "It's still fairly new to the market, but Microsoft has lots of market power." IDAPI also has market clout, he adds, so the API field's future is far from certain.

Where is the legacy-access middleware market headed? Over the short term, CIOs can expect more products, particularly narrowly focused solutions targeted at specific types of data and platforms. But getting data into the client/server environment is only part of the job. End users must be able to manipulate and examine the material in useful ways. "There aren't many tools available that will allow people to manage the information they will have," Hendrick says. "Most of the technologies that people have relied on historically just won't cut it." Tools like Microsoft SQL Server and Sybase SQL Server, as well as older products like dBASE, are commonly used to work with legacy data in the new environment, Hendrick notes, but the market is still relatively thin compared to the products available to mainframe and minicomputer customers.

Buchanan thinks the legacy-data middleware market's future is probably limited. "I don't think that these tools will be around five years from now," he says. "By that time, most users will have already moved or abandoned their older data." But he also foresees a far less pleasant possibility. "Today's client/server relational data may, five years from now, be someone else's legacy data." But, he adds, "at least it will all be in a relational format." **CIO**

*John Edwards is a freelance writer based in Mt. Laurel, N.J.*

## DATA ACCESS

*There are hundreds of data-access products available. This list is meant to be representative, not inclusive.*

| COMPANY                                                    | DBMS<br>GATEWAY | END-USER<br>DATA ACCESS | DEVELOPER<br>DATA ACCESS | MIDDLEWARE |
|------------------------------------------------------------|-----------------|-------------------------|--------------------------|------------|
| <b>ASK Group</b><br>Alameda, Calif.                        | ■               |                         |                          |            |
| <b>Apple Computer Inc.</b><br>Cupertino, Calif.            |                 |                         | ■                        |            |
| <b>Borland International Inc.</b><br>Scotts Valley, Calif. | ■               |                         |                          |            |
| <b>Bull</b><br>Billerica, Mass.                            |                 |                         | ■                        |            |
| <b>Cognos</b><br>Burlington, Mass.                         |                 | ■                       |                          |            |
| <b>D&amp;B Software</b><br>Atlanta                         |                 |                         |                          | ■          |
| <b>Datawatch</b><br>Durham, N.C.                           |                 |                         |                          | ■          |
| <b>Dharma</b><br>Nashua, N.H.                              |                 |                         | ■                        |            |
| <b>Digital Equipment Corp.</b><br>Maynard, Mass.           | ■               |                         |                          |            |
| <b>Evolutionary Technologies</b><br>Austin, Texas          |                 |                         | ■                        |            |
| <b>Gupta</b><br>Menlo Park, Calif.                         |                 | ■                       |                          |            |
| <b>Information Builders Inc.</b><br>New York               | ■               |                         | ■                        | ■          |
| <b>Micro Decisionware</b><br>Boulder, Colo.                | ■               |                         |                          |            |
| <b>Novell Inc.</b><br>Provo, Utah                          |                 |                         | ■                        |            |
| <b>Oracle</b><br>Redwood Shores, Calif.                    | ■               | ■                       |                          | ■          |
| <b>Pilot Software</b><br>Boston                            |                 | ■                       |                          |            |
| <b>Revelation Technologies</b><br>Stamford, Conn.          | ■               |                         |                          |            |
| <b>SAS</b><br>Cary, N.C.                                   |                 | ■                       |                          |            |
| <b>Sybase</b><br>Emeryville, Calif.                        | ■               |                         |                          |            |
| <b>Techgnosis</b><br>Boca Raton, Fla.                      |                 |                         |                          | ■          |
| <b>Trinzic</b><br>Portsmouth, N.H.                         |                 | ■                       |                          | ■          |
| <b>XDB Systems</b><br>Lauel, Md.                           | ■               |                         |                          |            |



|                                          |        |        |        |        |
|------------------------------------------|--------|--------|--------|--------|
| 1. Resource utilization                  | 4      | 8      | 12     | 19-397 |
| 2. Costs                                 | 5-26   | 9-26   | 13-26  | 20-161 |
| 3. Programmer productivity               | 6-349  | 10-349 | 14-349 | 21-291 |
| 4. Quality assurance                     | 7-397  | 11-397 | 15-397 |        |
| 5. Delivery dates                        | 8-146  | 12-146 | 16-161 | 17     |
| 6. Time Reporting                        | 9-146  | 13-146 |        | 18-26  |
| 7. Tracking change                       | 10-252 | 14-252 | 13     | 19-349 |
| 8. Management visibility                 | 5      | 15-161 | 14-26  | 20-397 |
| 9. Change management                     | 6-26   | 9      | 15-349 | 21-146 |
| 10. Maturity assessment                  | 7-349  | 10-26  | 16-397 | 22-146 |
| 11. Training requirements                | 8-397  | 11-349 | 17-146 |        |
| 12. Effort visibility                    | 9-146  | 12-397 | 18-146 | 18     |
| 13. Standards                            | 10-146 | 13-146 | 14     | 19-26  |
| 14. Planning                             |        | 14-146 | 15-26  | 20-349 |
| 15. Configuration management             | 6      | 15-252 | 16-349 | 21-397 |
| 16. Integrating IS. to business strategy | 7-26   | 10     | 17-397 | 22-146 |
| 17. Market requirements                  | 8-349  | 11-26  | 18-146 | 19     |
| 18. Competitive performance              | 9-397  | 12-349 | 19-146 | 20-26  |
| 19. Long-term forecasting                | 10-146 | 13-397 | 14-146 | 21-349 |
| 20. Skill requirements                   | 11-146 | 15-146 | 16-26  | 22-397 |
|                                          | 7      | 15-146 | 17-349 | 23-146 |
|                                          | 8-26   |        | 18-397 | 24-146 |
|                                          | 9-349  | 11     | 19-146 | 25-252 |
| 1                                        | 2      | 3      | 4      | 5      |
| 2-26                                     | 3-26   | 4-26   | 10-397 | 12-26  |
| 3-349                                    | 4-349  | 5-349  | 11-146 | 13-349 |
| 4-69                                     | 5-397  | 6-397  | 12-146 | 14-397 |
| 5-72                                     | 6-146  | 7-146  | 13-252 | 15-146 |
| 6-64                                     | 7-81   | 8-146  | 14-652 | 16-546 |
|                                          |        |        |        | 17-26  |
|                                          |        |        |        | 18-349 |
|                                          |        |        |        | 20-146 |
|                                          |        |        |        | 21-26  |
|                                          |        |        |        | 22-349 |
|                                          |        |        |        | 23-397 |
|                                          |        |        |        | 24-146 |

**YOU  
ARE  
HERE**

*For those traveling the long road of software development, we'd like to point out just what our product does for you.*

Artemis gives you the visibility to see exactly where you are. You'll know how you measure up against your plans, your competition and your business requirements. So you can make changes quickly before problems become too big to control. With Artemis, you also get an accurate picture of your product's time to market. And you'll see just where your people spend their time, so you can increase productivity and save money. If you're looking for greater control over your software efforts, we'll map out a solution for you. For more information, call 1-800-4PRO-MGT.

*Artemis*

**Lucas Management Systems**



# BOOZ·ALLEN

*The Systems/Business Balancing Act*



# & HAMILTON

A large, abstract mobile sculpture made of black, red, and yellow shapes hanging from the top of the page. The sculpture consists of several long, curved black ribbons that branch out downwards. Attached to these ribbons are various flat, organic shapes in black, red, and yellow. Some shapes are simple ovals or teardrops, while others are more complex, resembling leaves or petals. The overall effect is a dynamic, flowing composition that suggests movement and balance.

Great works of art don't just happen. Neither do successful information systems.

Like sculptors, systems consultants must carefully balance seemingly opposing forces: the desire for technological innovation must be weighed against business goals and user needs.

That's why all our systems assignments start at the beginning. Booz·Allen industry strategists and operations experts work up-front with our information technologists to gain an understanding of where our clients are—from an overall business perspective—today. And what their goals and strategies are for tomorrow.

Our STRATEGY-DRIVEN SYSTEMS<sup>SM</sup> approach ensures that we take the concerns of both business and information executives into account on every IT assignment. Weighing the needs of the business and applying the right technologies, we develop systems that further the overall goals of the enterprise...systems at the heart of our clients' business...systems that drive success.

Information Systems Group

212 697 1900



# FRONTLINE



BY PORTIA ISAACSON

*The corruption of the client/server concept is not necessarily a negative thing. The term is serving as a rallying point for IS groups moving away from mainframe-centricity toward higher-order computing.*

## *Beyond Client/Server*

### WHAT'S IN A NAME?

A few years ago, if I needed to know what a client/server system was, I simply opened my operating-systems book and reviewed the then-accepted definition: a system in which a client computer requests data or processing from a server computer. A client/server system can be contrasted with a host/terminal system, in which the host computer performs all the processing and the dumb terminal simply accepts the user's input and displays the host's output. It can also be contrasted with a peer-to-peer system, in which any computer on a network may request processing or data from any other as well as service requests for processing or data from any other.

It is easy to see how the meaning of client/server has been corrupted and expanded, and how the concept has been hyped to the status of computing's numero-uno flag word. We desperately needed such a flag word to rouse glass-house IS professionals to attack their own mainframe complacency. "Open systems" just wasn't vivid enough. "Personal computing" might have worked, but how could IS pros have surrendered to their nemesis on the desktop? Besides, "personal computing" simply doesn't give credit to the server and network in enterprise computing.

"Client/server" was the perfect choice. It could be slightly corrupted to mean nonmainframe (a small step from non-host/terminal), and it gives an essential role to the server, albeit a subservient one. It also did not go

unnoticed by mainframe vendors (or IS pros) that mainframes could be disguised as servers, thus extending the life of mainframe revenues (or investments) and legacy applications and skills. (Sometimes, using a mainframe as a server is very wise—such as for mission-critical systems during a transition. At other times, however, it is not; such as when the host/terminal system is disguised as a client/server system by putting a GUI mask on the terminal—for instance, the X terminal. Naughty, naughty.)

Today "client/server" has become a near-meaningless but very useful term. Even though it no longer denotes a specific style of computing or type of system, it does signal a commitment to review, update and modernize information systems—even if it means change.

## *Eye on the Prize*

### MOVING TO CLIENT/NETWORK

If you have committed to expand client/server systems within your organization, you have taken the first step. Or maybe the commitment to downsize or reengineer was the first step. In any case, all these flag concepts point in the same direction—to an enormously more-creative and -productive dynamic alignment of computing and organizations. In many industries, the race to update IT infrastructures will decide the fate of competitors.

The business press is so full of IT-enabled success stories and IT-doomed failures that CEOs sometimes actually ask CIOs what they could do if their IT budgets were increased. Who would have

thought it? But in the haste to salute the client/server flag, IS executives are at risk of losing sight of their real objectives. Typical objectives include: cost savings, flexibility to instantly match changing enterprise structures, empowerment of workers through information accessibility, and the rapid creation of new IT-defined or -supported products and services.

As we progress toward the realization of our objectives, my bet is that we focus increasingly on "client/network" systems rather than client/server. The adoption of client/network as a flag word in 1995 would be a step toward a higher order of computing that I call collaborative client/network computing. In the collaborative environment, the clients on the network no longer simply request data and processing from the network; they will actually act in multimedia (and someday in holographic virtual reality) concert to accomplish in seconds creative tasks that now take days or weeks or perhaps can't be accomplished at all.

For example, a team of designers from France, the United States and Japan could participate in the design of a new line of clothing by working on a shared, editable image with voice links from their offices. As an item of clothing is completed, it would be scaled to the bodies of computer-simulated models that would twist and turn down the digital runway accompanied by the music planned for the first showing. As the line is finalized, a multimedia recording would be made for approval by management before the first piece of cloth is cut from the automati-

**"Client/server" will be the most-used computing buzzword of 1994.**

**The only processor architecture that scales from handheld to supercomputer is the X86.**

# In the world of client/server financial systems, the 21st Century dawns at 8:30 a.m. in the following locations.

**Welcome to  
ATLANTA**

**WASHINGTON**

**CHARLOTTE**

**Entering  
Chicago**

**Cleveland  
NEXT EXIT**

**Welcome to  
KANSAS CITY**

**DALLAS  
2nd RIGHT**

**Welcome to  
MIAMI**

**Downtown  
Los Angeles**

**NEW YORK**

**Entering  
ROCHESTER**

**City of  
Seattle**

**BOSTON  
2 miles  
ahead**

**Welcome to  
SAN FRANCISCO**

You know it could be better;

You know you need to change but you may not know how or even what;

If you're considering client/server, spend the morning with us.

Dun & Bradstreet Software and Andersen Consulting will provide keynote addresses on practical techniques and the enabling tools to advance your financial organization.

If you're interested in seeing what client/server can do for you, call 1-800-608-3030 and make a reservation to join us.

**D&B SOFTWARE**

**ANDERSEN  
CONSULTING**  
ARTHUR ANDERSEN & CO., S.C.

 **HEWLETT  
PACKARD**

**Microsoft**

 **Data General**

 **SYBASE**

The premier providers of advanced technology solutions have teamed together to present  
*Ideas & Technology, a Forum for the Financial Practitioner.*



# FRONTLINE

cally generated pattern.

The most-powerful, most-flexible, least-complex enterprisewide system would be one that replaces our current network hodgepodge with scalable, duplicatable, modular components. To achieve this higher-order network organization, we will need to give up the complexity of disparate processors, languages, applications and network connections. And we will have to replace proprietariness with high-volume, market-accepted sameness—infinately scalable, parallel processing and networked sameness.

Less-complex systems save time and money in installation, programming, maintenance and training. Sameness at the client/network level will enable innovation at the higher level of the collaborative network.

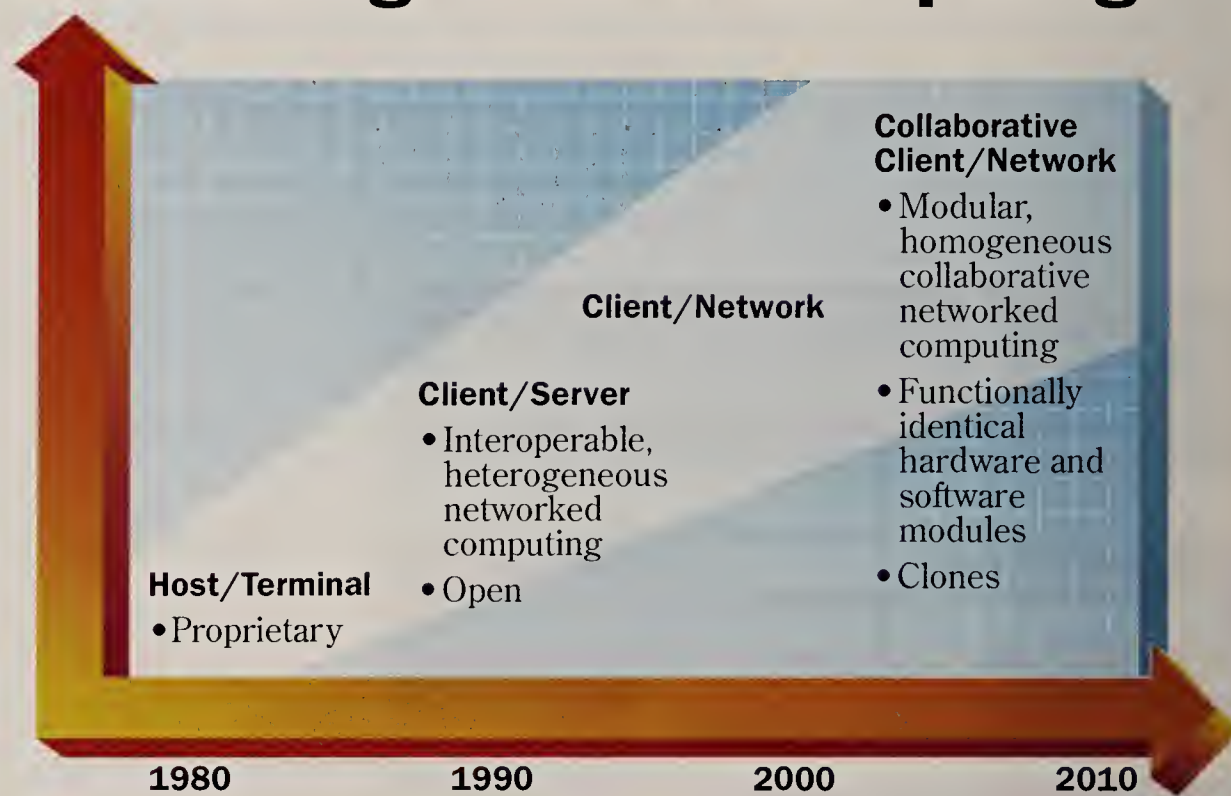
## Platform Diving

### HIGHER-ORDER I.T.

Today there are only two platform contenders for the foundation of the least-complex IT system. One is Microsoft Corp., with its legions of hardware followers offering systems ranging from handhelds to mid-range servers. The other is Unix, with Sun Microsystems Inc. as its leading proponent. Today, Microsoft rules the client and Unix rules the server, but neither quite meets our requirements for high-volume market acceptance, infinite scalability, parallel processing and networked sameness.

Microsoft offers the ultimate sameness on the desktop and on the road, but the server is still a hodgepodge. However, as Windows NT chugs out, and as Intel Corp.

## Toward Higher-Order Computing



X86 processors become the core for mainframes and parallel-architecture, transaction-processing supercomputers, Microsoft and Intel may indeed offer the best bet for high-sameness systems.

The sameness of Unix, today's best solution on the server side, is in most enterprise systems a cover for hodgepodge proprietary-hardware collections. So, although the lock-in of proprietary systems has been vanquished, much of the complexity remains. And, of course, Unix will never be able to dislodge the Microsoft application developers for the desktop. My call is that Microsoft and Intel will provide us with the sameness and modularity from which we will build 21st-century collaborative client/networks.

In my 20-odd years of IT-industry analysis, I have observed a juggernaut market force toward more-powerful, more-flexible, less-complex systems. I call this the high-

er-order IT force. Today it is shifting our focus in IT systems from the individual components (clients, servers, network connections) to the collaborative union of clients in a new-species network. As our focus moves, the cells of which the network is composed must develop a greater degree of commonality or we will find that the network we intended became instead a tower of Babel.

As we modularize and simplify the elements of the network, the network itself will become more capable, adaptable and knowledgeable. Ultimately, it will become the enterprise infrastructure of our dreams. We will be able to shift our energy to enhancing the perimeter of the network rather than just maintaining the internals. The collaborative client/network system will leave the launching pad in a few years and dominate computing by 2005.

As you build client/server systems today, consider

them an essential step—but only a step—in the transition to collaborative client/network. Choose the most-modular network components available. Build systems that can be replicated for new subsidiaries, branches and business teams. Build systems with reusable components that can be deconstructed and reconstructed with the ebb and flow of the organization. If client/server has been a paradigm shift, then higher-order collaborative client/networks will be no less than the big bang that will give birth to a new universe of computing and enabled enterprise structures.

If you don't love change, perhaps you should consider the antiques business. 

*Portia Isaacson is president of Dream IT Inc., a consultancy and publisher headquartered in Colorado Springs, Colo., dedicated to providing quality business information to customers and creators of frontline IT.*

Birds migrate  
naturally.

Regrettably,  
the same  
can't be said  
for companies  
migrating to  
client/server.

Converting from mainframes to client/server? We've been helping companies make the transition smoothly since 1973. Minimizing costs while maximizing business performance. If that sounds good to you, take the next natural step. (214) 605-2000.

The EDS logo is a dark blue square with the letters "EDS" in white, bold, sans-serif font.

**EDS**





## Multimedia, a la node. *(Serves your entire network.)*

Here's some food for thought. Multimedia networking that lets people easily share data via audio and video communication—anywhere, anytime. That's what distributed multimedia networking from IBM brings to the table. And only IBM can integrate your PS/ValuePoint™, PS/2®, RISC System/6000® workstations, AS/400® and ES/9000™ systems, and all the key ingredients to satisfy your business's appetite.

It's all a part of the IBM Ultimedia® family. To find out more about our extensive menu including consulting services, call 1 800 426-9402, ext. 340. And get a taste of what we can do for your business.

IBM, PS/2, RISC System/6000, AS/400 and Ultimedia are registered trademarks and PS/ValuePoint and ES/9000 are trademarks of International Business Machines Corporation. © 1993 IBM Corp



ARDIS

BOOZ ALLEN & HAMILTON

COMPUTER  
ASSOCIATES  
Software superior by design

EDS

TAKE ADVANTAGE OF CHANGE

GUPTA

hp HEWLETT  
PACKARD

IVIRS

Information  
Builders

INFORMIX

MAXM  
Systems Corporation

Nielsen

PICTURETEL

Racal-Datacom™

Sun

SYNCRDIA

Technology Investment  
Strategies Corporation

TEXAS  
INSTRUMENTS

XCELLENET

CIO

The CIO Perspectives Series <sup>SM</sup>

# Re-Visioning IT:

Achieving an Enterprise Perspective

Featuring Tom Peters



**Conference Moderator:**

Robert J. Benson  
*Washington University  
St. Louis, Missouri*

**A few of our distinguished re-visionaries...**

Hal Rosenbluth  
*CEO, Rosenbluth International*

Ralph Szygenda  
*CIO, Bell Atlantic*

Dr. John Silva  
*Project Manager, ARPA*

Sharon Heldorfer  
*VP, Property & Casualty Claims  
Field Operations, CIGNA*

John Biggs  
*Executive VP, Hyatt Hotels*

Charlie Mayer  
*Managing Director & CIO  
CS First Boston*

Al Ries  
*Chairman, Trout & Ries*

Dr. Jim Loehr  
*President, Mentally  
Tough Corporate  
Training Center*

**March 13-16, 1994**

Hyatt Grand Cypress  
Orlando, Florida

For more information, or to  
enroll call **800-366-0246**





## INDEX

Page numbers refer to the first page of the article(s) in which the company is mentioned. This index is provided as a service to readers. The publisher does not assume any liability for errors or omissions.

### Company Index

|                                   |            |
|-----------------------------------|------------|
| 3Com Corp.                        | 14, 82     |
| Andersen Consulting               | 30         |
| Apple Computer Inc.               | 14         |
| BSG Consulting Inc.               | 30         |
| Borland International Inc.        | 66         |
| Boyle Transportation              | 46         |
| Cambridge Technology Group        | 36         |
| Cambridge Technology Partners     | 30, 36     |
| Canadian Surety Co., The          | 36         |
| Connecticut Mutual Life Insurance | 36         |
| Continental Insurance             | 14         |
| Data Security Systems Inc.        | 46         |
| Dauphin Technology Inc.           | 82         |
| Deloitte & Touche                 | 36, 46     |
| Digital Equipment Corp.           | 30         |
| Digital Network Architects Inc.   | 14         |
| Dow Jones & Co. Inc.              | 14         |
| Durand Communications             | 14         |
| Electronic Data Systems Corp.     | 14         |
| Ernst & Young                     | 46         |
| Expert Choice Inc.                | 24         |
| Ford Models Inc.                  | 14         |
| Forrester Research Inc.           | 30, 66     |
| France Telecom                    | 14         |
| Funk Software Inc.                | 46         |
| Gartner Group                     | 30, 46     |
| Hewlett-Packard Co.               | 30         |
| IBM Corp.                         | 30, 46, 66 |
| Informatica Corp.                 | 82         |
| Information Builders Inc.         | 66         |
| Information Security Inc.         | 46         |
| Instant Exposure Inc.             | 14         |
| Intel Corp.                       | 74         |
| International Data Corp.          | 30, 66     |
| ITT Hartford Insurance            | 14         |
| Kinderhook Systems                | 46         |
| META Group, The                   | 30         |
| MapInfo Corp.                     | 14         |

|                                   |                |
|-----------------------------------|----------------|
| Maxis Business Simulations        | 14             |
| McDonald's Corp.                  | 14             |
| Medical Center of Delaware        | 36             |
| Melville Corp.                    | 46             |
| Merrill Lynch                     | 14             |
| Metrix Inc.                       | 46             |
| Michigan Dept. of Trans.          | 36             |
| Microsoft Corp.                   | 14, 66, 74, 82 |
| Nolan, Norton & Co.               | 30, 36         |
| Novell Inc.                       | 46, 66         |
| Positive Support Review Inc.      | 14             |
| Progress Software Corp.           | 46             |
| Real Decisions Corp.              | 14             |
| Securities Pacific Automation Co. | 14             |
| SRI International                 | 46             |
| Strategic Mapping Inc.            | 14             |
| Sun Microsystems Computer Corp.   | 30             |
| Sun Microsystems Inc.             | 74             |
| Sybase Inc.                       | 30             |
| USC Software Systems              | 66             |
| US WEST                           | 14             |
| Vality Technology Inc.            | 46             |
| Xactware Inc.                     | 82             |

### Advertiser Index

|                                |                  |
|--------------------------------|------------------|
| 4th Dimension Software         | 13               |
| Action Technologies            | 22               |
| Amdahl Corp.                   | 48               |
| Booz-Allen & Hamilton          | 72               |
| Brock Control Systems          | 53               |
| CIO Publishing Inc.            | 16, 16A, 24A, 79 |
| Computer Associates Intl. Inc. | 2, 44            |
| Computer Bowl                  | 78               |
| D&B Software                   | 75               |
| Digital Equipment Corp.        | 55, C2           |
| EDS Corp.                      | 77               |
| EMC Corp.                      | 11               |
| Exide Electronics              | 63               |
| FourGen Software Inc.          | C4               |
| Gupta Corp.                    | 69               |
| Hewlett-Packard Co.            | 4, 21            |
| IBM Corp.                      | 8                |
| Information Builders Inc.      | 6                |
| Informix                       | 59               |
| Lawson Software                | C3               |
| Lucas Management Systems Inc.  | 71               |
| MAXM                           | 32A              |
| MicroAge                       | 81               |
| Must Software International    | 33               |
| NCR                            | 40               |
| OpenConnect Systems Inc.       | 19               |
| SAS Institute Inc.             | 15               |
| Sybase Inc.                    | 61               |
| System Software                | 25               |
| Unisys Corp.                   | 67               |
| Xcelsius                       | 65               |

**Editorial, Advertising and Business Offices:** 492 Old Connecticut Path, PO Box 9208, Framingham, Massachusetts 01701-9208, (508) 872-8200. **Postal Information:** CIO (ISSN 0894-9301) is published semi-monthly; monthly in July and August; and as a combined issue December 15/January 1 by CIO Publishing Inc., 492 Old Connecticut Path, PO Box 9208, Framingham, Massachusetts 01701-9208. Second-class postage paid at Framingham, MA, and at additional mailing offices. **Reprints:** Copyright 1994 by CIO Publishing Inc. All rights reserved. Reproduction of material appearing in CIO is forbidden without written permission. Send all reprint requests to Permissions Editor, CIO, 492 Old Connecticut Path, PO Box 9208, Framingham, Massachusetts 01701-9208. **Photocopy Rights:** Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by CIO for users through the Copyright Clearance Center (CCC), provided that the base fee of \$3.00 per copy of the article, plus \$.50 per page is paid directly to Copyright Clearance Center, 27 Congress Street, Salem, Massachusetts 01970. Please specify: ISSN 0894-9301. Permission to photocopy does not extend to contributed articles followed by this symbol: ‡ **Microfilm:** CIO issues and articles can be purchased on 16mm and 35mm microfilm and on 105mm microfiche through University Microfilms International, Serials Acquisitions Department, 300 N. Zeeb Road, Ann Arbor, Michigan 48106. **Subscriptions:** Address inquiries to CIO, 492 Old Connecticut Path, P.O. Box 9208, Framingham, Massachusetts 01701-9208. CIO is free to qualified information executives. To all others the one-year basic rate is \$98 for U.S. and Canada, \$185 for foreign countries (payable in U.S. funds only). The single copy price is \$7. Please allow 4 to 6 weeks for new subscriptions to begin. **Change of Address:** Please fax a copy of current subscription label along with new address to (508) 872-0618. Allow 4 to 6 weeks for change to take effect. **Postmaster:** Send change of address to CIO, P.O. Box 489, Northbrook, Illinois 60065-9816.

### CIO Sales Offices

#### President and Publisher

JOSEPH L. LEVY  
508 935-4601

#### Vice President, Sales

MICHAEL J. MASTERS  
201 244-5510

#### List Services Manager

STEPHANIE LEGELIS  
508 935-4433

CIO Publishing Inc.

492 Old Connecticut Path  
PO Box 9208

Framingham, MA 01701-9208  
508 872-8200, FAX 508 872-0618

#### EAST COAST/NORTH CENTRAL

##### Regional Manager/Advertising Sales

FRANK S. GENOVESE  
201 244-5505

##### District Manager/Advertising Sales

EILEEN TRAPP  
201 244-5507

##### Account Executive

KIRSTIN L. PIHL  
201 244-5511

##### Advertising Sales Associate

MARLENE M. LEVIS

CIO Publishing Inc.

30 Two Bridges Road, Suite 110  
Fairfield, NJ 07004

201 227-1140, FAX 201 227-1565

#### NEW ENGLAND

##### Regional Director/Advertising Sales

LINDA L. BURTON  
508 935-4039

##### Advertising Sales Associate

DOT CASPERSEN

CIO Publishing Inc.

492 Old Connecticut Path  
PO Box 9208

Framingham, MA 01701-9208  
508 872-8200, FAX 508 872-0618

#### SOUTH CENTRAL/EASTERN CANADA

##### Regional Manager/Advertising Sales

ROBERT E. SAWDON

##### Advertising Sales Associate

DEBBIE LIVELY

CIO Publishing Inc.

5495 Beltline Road, Suite 240  
Dallas, TX 75240

214 239-5736, FAX 214 239-5734

#### WEST COAST/WESTERN CANADA

##### Regional Director/Advertising Sales

GERALD E. PARSONS  
415 693-1987

##### Regional Manager/Advertising Sales

RICHARD BASTAS  
415 693-1988

##### Advertising Sales Associate

JOCELYN D. ERTEL

CIO Publishing Inc.

220 Montgomery Street, Suite 1120  
San Francisco, CA 94104

415 398-8200, FAX 415 398-4649

CIO is a publication of International Data Group, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. International Data Group publishes over 194 computer publications in 62 countries. Forty million people read one or more International Data Group publications each month. International Data Group's publications include: **ARGENTINA'S** Computerworld Argentina, Infoworld Argentina; **ASIA'S** Computerworld Hong Kong, PC World Hong Kong, Computerworld Southeast Asia, PC World Singapore, Computerworld Malaysia, PC World Malaysia; **AUSTRALIA'S** Computerworld Australia, Australian PC World, Australian Macworld, Network World, Mobile Business Australia, Reseller, IDG Sources; **AUSTRIA'S** Computerwelt Oesterreich, PC Test; **BELGIUM'S** Data News (CW), **BRAZIL'S** Computerworld, Gamepro, Game Power, Mundo IBM, Mundo Unix, PC World, Super Game; **BULGARIA'S** Computerworld Bulgaria, Edworld, PC & Mac World Bulgaria, Network World Bulgaria; **CANADA'S** CIO Canada, Computerworld Canada, Graduate Computerworld, InfoCanada, Network World Canada; **CHILE'S** Computerworld Chile, Informatica; **COLOMBIA'S** Computerworld Colombia; **CZECH REPUBLIC'S** Computerworld, Elektronika, PC World; **DENMARK'S** CAD/CAM WORLD, Communications World, Computerworld Danmark, LOTUS World, Macintosh Produktkatalog, Macworld Danmark, PC World Danmark, PC World Produktguide, Windows World; **ECUADOR'S** PC World Ecuador; **EGYPT'S** Computerworld (CW) Middle East, PC World Middle East; **FINLAND'S** MikroPC, Tietoviiikko, Tietoverkko; **FRANCE'S** Distributique, GOLDEN MAC, InfoPC, Languages & Systems, Le Guide du Monde Informatique, Le Monde Informatique, Telecoms & Reseaux; **GERMANY'S** Computerwoche, Computerwoche Focus, Computerwoche Extra, Computerwoche Karriere, Information Management, Macwelt, Netzwerk, PC Welt, PC Woche, Publish, Unit; **GREECE'S** Infoworld, PC Games; **HUNGARY'S** Computerworld SZT, PC Virlag; **INDIA'S** Computers & Communications; **IRELAND'S** Computerscope; **ISRAEL'S** Computerworld Israel, PC World Israel; **ITALY'S** Computerworld Italia, Lotus Magazine, Macworld Italia, Networking Italia, PC Shopping Italy, PC World Italia; **JAPAN'S** Computerworld Today, Information Systems World, Macworld Japan, Nikkei Personal Computing, SunWorld Japan, Windows World; **KENYA'S** East African Computer News; **KOREA'S** Computerworld Korea, Macworld Korea, PC World Korea; **MEXICO'S** Compu Edicion, Compu Manufactura, Computacion/Punto de Venta, Computerworld Mexico, MacWorld, Mundo Unix, PC World, Windows; **NETHERLANDS'** Computer! Totaal, Computable (CW), LAN Magazine, MacWorld, Totaal "Windows"; **NEW ZEALAND'S** Computer Listings, Computerworld New Zealand, New Zealand PC World; **NIGERIA'S** PC World Africa; **NORWAY'S** Computerworld Norge, C/World, Lotusworld Norge, Macworld Norge, Network, PC World Ekspress, PC World Norge, PC World's Produktguide, Publish & Multimedia World, Student Data, Unix World, Windowsworld; **IDG Direct Response**; **PANAMA'S** PC World Panama; **PERU'S** Computerworld Peru, PC World; **PEOPLE'S REPUBLIC OF CHINA'S** China Computerworld, China Infoworld, PC World China, Electronics International, Electronic Product World, China Network World; **IDG HIGH TECH BEIJING'S** New Product World, **IDG SHENZHEN'S** Computer News Digest; **PHILIPPINES'** Computerworld Philippines, PC Digest (PCW); **POLAND'S** Computerworld Poland, PC World/Computer; **PORTUGAL'S** Cerebro/PC World, Correio Informatico/Computerworld, MacIn; **ROMANIA'S** Computerworld, PC World; **RUSSIA'S** Computerworld-Moscow, Mir-PC, Sety; **SLOVENIA'S** Monitor Magazine; **SOUTH AFRICA'S** Computer Mail (CIO), Computing S.A., Network World S.A.; **SPAIN'S** Amiga World, Computerworld Espana, Comunicaciones World, Macworld Espana, NeXTWORLD, Super Juegos Magazine (GamePro), PC World Espana, Publish, Sunworld; **SWEDEN'S** Attack, ComputerSweden, Corporate Computing, Lokala Nätverk/LAN, Lotus World, MAC&PC, Macworld, Mikrodatorn, PC World, Publishing & Design (CAP), Datalingenjoren, Maxi Data/Windows World; **SWITZERLAND'S** Computerworld Schweiz, Macworld Schweiz, PC Katalog, PC & Workstation; **TAIWAN'S** Computerworld Taiwan, Global Computer Express, PC World Taiwan; **THAILAND'S** Thai Computerworld; **TURKEY'S** Computerworld Monitor, Macworld Türkiye, PC World Türkiye; **UKRAINE'S** Computerworld; **UNITED KINGDOM'S** Computing/Computerworld, Connexion/Network World, Lotus Magazine, Macworld, Open Computing/Sunworld, **UNITED STATES'** Amiga World, Cable in the Classroom, CD Review, CIO, Computerworld, Desktop Video World, DOS Resource Guide, Electronic Entertainment Magazine, Federal Computer Week, Federal Integrator, GamePro, IDG Books, Infoworld, Infoworld Direct, Laser Event, Macworld, Multimedia World, Network World, NeXTWORLD, PC Letter, PC World, PlayRight, Power PC World, Publish, SunWorld, SWATPro, Video Event, **VENEZUELA'S** Computerworld Venezuela, MicroComputerworld Venezuela, **VIETNAM'S** PC World Vietnam.



# WE DO A LOT OF THINGS TO COMPUTER SYSTEMS.

WE **FINANCE** THEM. WE **LEASE** THEM.  
WE **UPGRADE** THEM. WE **CONFIGURE**  
THEM. WE **CUSTOMIZE** THEM. WE  
**ASSET TAG** THEM. WE **PACKAGE**  
THEM. WE **STORE** THEM. WE **DELIVER**  
THEM. WE **PROTECT** THEM. WE  
**INSTALL** THEM. WE **NETWORK**  
THEM. WE **INTEGRATE** THEM. WE  
**SUPPORT** THEM. WE **SERVICE** THEM.

*So You Can  
Work  
Faster,  
Better,  
Cheaper.*

CALL (800) 272-0564 TO LEARN WHAT  
MICROAGE INFOSYSTEMS SERVICES CAN DO FOR YOU.



**MicroAge**

INFOSYSTEMS SERVICES

©1994 MicroAge Computer Centers, Inc. All rights reserved. MicroAge® is a registered trademark of MicroAge Computer Centers, Inc. MicroAge is an international sales organization of independently owned and operated franchised, company-owned and affiliated reseller locations. All other registered trademarks and trademarks are the properties of their respective companies.



**COMPAQ**



**HEWLETT  
PACKARD**

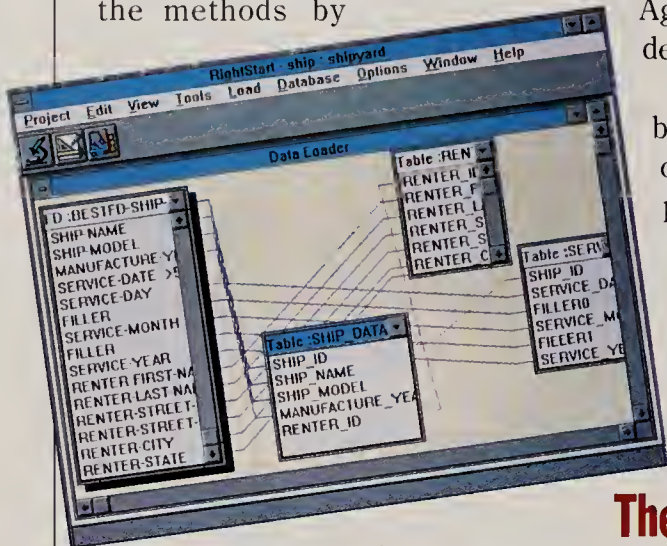
*Authorized Dealer*

**NEC**



## Paper-Free Estimates

The spate of natural disasters in recent years has surely given insurers reason to reevaluate the methods by



which claims are prepared. Xactware Inc. offers an alternative to the manual process of figuring the costs of reconstruction and property damage due to floods, hurricanes and fires.

Xactimate 5.0, which can be used on a desktop or laptop PC, provides a built-in price database that contains pictures of material components of most items as well as descriptions of labor involved. (Quarterly price updates are available for markets covering the United States and most of Canada.) When adjusters enter dimensions and select price-list items, Xactimate calculates the necessary materials and costs. Estimate items can also be selected with a mouse click or by striking tab and arrow keys. Xactimate's report options include estimates, worksheets and management reports, and there are three levels of context-sensitive help.

Pull-down menus, scrolling lists and WYSIWYG screens are also provided by the product. In addition, users have the option of entering information using abbreviations that are the same as those commonly used by adjusters and builders.

Xactimate, which costs \$3,995, requires a 386-based PC, 4MB RAM, DOS 5.0 or higher, a 40MB disk and a 3.5-inch floppy-disk drive. Call sales agent CCC Information Services at 800 621-8070, Ext. 9-2963.

## One for All and All for One

Managing networks is a tough job, especially in organizations where dissimilar network devices are commonplace. 3Com Corp. is offering a family of products to ease the network-management nightmare. Through the use of the company's SmartAgent software, Transcend enables network administrators to manage related network devices as a single entity rather than a collection of discrete elements.

SmartAgent software links configuration, event and performance data from hub, bridge/router and adapter agents. It also presents integrated management information on a single graphical interface. The single entities, or logical connectivity systems, provide correlated management information on a single graphical user interface, thus reducing the cost and complexity of network management.

Once the entities are defined, Transcend organizes them into a hierarchical enterprise view, where management tools then act on entire connected systems rather than individual devices. Transcend will support Unix- and PC-based platforms. For pricing and product availability, call 408 764-5000.

## The Size Is Right

Mobile professionals have a dilemma. It would be great to have one computer, with one set of software, for the office, home and the road. But most notebooks' screens and keyboards are just too constricting for extended desktop use. Dauphin Technology Inc. may have a solution.

Weighing in at 2.5 pounds, the DeskTop Replacement-1 (DTR-1) is designed to supplant your typically bulky PC desktop system. The 9- x 5.5- x 1.25-inch, 486-based, 25MHz system features 4MB to 6MB of RAM; a 20MB or 40MB hard-disk drive; DOS 6.0, Windows 3.1 and Windows for Pen; and a built-in fax/data modem. It also provides standard I/O ports and a six-inch VGA display.

At the office, plug in your regular monitor and keyboard. On the road, connect the system's mini-keyboard or opt for pen-based input. The internal rechargeable battery lasts two hours; an optional external battery pack provides an extra eight hours. The system costs approximately \$2,500, including the mini-keyboard and cordless electronic stylus. Call 708 971-3400.



## Accelerated Migration

Although the rightsizing bug has bitten many organizations, migrating legacy systems to distributed client/server environments is a real fly in the ointment. Informatica Corp.'s RightStart is a Microsoft Windows-based toolkit that organizations can use to accelerate that migration. According to the company, the product saves time, reduces costs and lowers the risk of error involved in migrating legacy systems to client/server.

The toolkit consists of three components. Cobol Analyzer captures information about data definitions from the source code of an application. Database Designer allows users to modify data definitions graphically and creates relational-database tables. Data Loader loads existing data by mapping legacy-data structures to the relational-database tables.

Priced at \$3,495 for a single-user license, RightStart operates with relational databases that support Microsoft's Open Database Connectivity Interface. Call 310 479-4601.



# HOW TO UNRAVEL THE CLIENT/SERVER MYSTIQUE.

**F**irst, accept that there is no mystique. Rather, there are hordes of slightly frantic software companies content to have you believe that effective open system solutions remain elusive while they rush to understand, develop, and market their interpretation of client/server. Then there's Lawson Software.

## An Open Systems Foundation



At Lawson Software, we've been committed to open systems since our company was founded in 1975. We've always believed that

to be a valuable business partner, an applications provider must offer choices for business strategy development. So for us, client/server isn't a new phenomenon. Instead, it's the next logical step in our development. And it exists today – fully developed and fully functional – in the latest release of our enterprise-wide, cross-industry, world-class business application software.

## A True Client/Server Solution

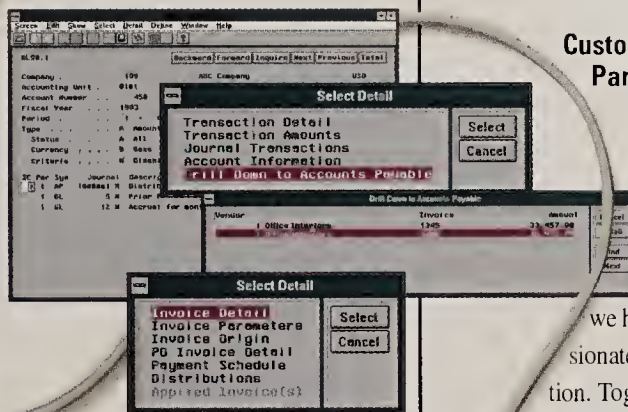
The truth is, client/server takes on a special meaning for each individual business computing environment. That's why we've structured our client/server solution as a comprehensive 3-tier architecture, delivering you maximum flexibility in hardware, database and user interface. It's why Lawson's products run across platforms like the AS/400 as well as UNIX systems such as the RS/6000 and HP9000. And it's also why we feature seamless support for a variety of leading databases. In short, we offer options that allow you to make the decisions. Based on your

existing hardware configurations and your plans for future development, you choose to place the components of client/server where they will deliver the greatest value and performance.

## Optimized Information Management

Lawson's efficient use of technology leads to a system with the scalability demanded in today's changing world.

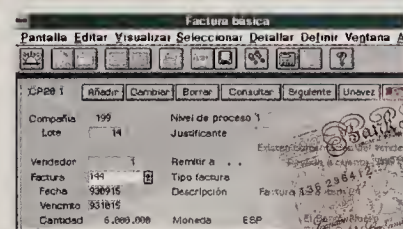
We incorporate the latest GUI technologies, creating a user-friendly environment that reduces training time. Individual users can manipulate windows, icons and tool bars to create a personal work environment that increases productivity. In addition,



Lawson has revolutionized the way users access information with our comprehensive "drill-around" capability: now a single click of the mouse allows transparent access to data from multiple applications and platforms. And finally, to truly maximize your options, Lawson has maintained the ability to interface our applications using character-based terminals.

## Worldwide Computing Flexibility

Lawson's single, worldwide product set – featuring all the freedom of our flexible client/server architecture – means the ultimate in simplicity for large, international



companies functioning in a variety of intra-national markets. You'll find capabilities like support for multiple languages, currencies, tax codes and rates, as well as a variety of date and reporting formats. So whether your business is managing one site or sites around the globe, you can turn to Lawson Software for one total solution.

## Customer-Focused Partnership

Lawson Software has always been focused on leading edge technology. And

we have always been passionate about client satisfaction. Together, these two commitments have resulted in truly flexible business solutions created with your needs in mind. We'd like the chance to demonstrate this to you. You'll see how – from our system architecture to

our award winning client services – Lawson Software really does unravel the client/server mystique.

For more information call  
1-800-477-1357 ext. 853.

**LAWSON**  
Software

Running the World's Best Companies™

All product names referenced herein are trademarks of their respective companies.



# "FourGen Enterprise Financials

and FourGen CASETools™ allowed National Easter Seals to implement our own concepts and designs instead of having to mold around an inflexible "canned" software package.

FourGen Enterprise has the fundamental accounting features needed by large organizations plus the most flexible technology architecture I've seen.™

James Sanders  
Information Systems Manager  
The National Easter Seal Society

## Easter Seals Finds Flexibility in FourGen Financials

**T**he key to your organization's competitive advantage lies in the specialized systems and processes you have created. FourGen Enterprise Financials allow you to develop and keep these systems in place by allowing your mission-critical applications to fit you rather than forcing you to fit a rigid structure.

### Modifiable-By-Design

A new emphasis on quality drove the National Easter Seal Society to revamp its information systems. For MIS Manager James Sanders, the

directive translated into the need for new accounting software that offered features designed for large organizations plus easy access to information. The combination was found in FourGen Enterprise Financials, the first package built from the ground up to react quickly to changes and report information easily.

FourGen offered Easter Seals a common sense approach to client/server applications which allowed them to put the processing where it is most productive.

Open Systems, Client/Server, 4GL, SQL, and

CASE technologies; these are the ingredients in FourGen's formula resulting in the most productive, least costly, mission-critical computing.

### Satisfied Customers Worldwide

FourGen's success at Easter Seals is being duplicated at Motorola, Texaco, AT&T, KFC, and other FourGen customers worldwide. Learn more about these companies' success with FourGen's "Customer Showcase." To request your **free** copy, call **800-333-4436** and mention ad #AEC-139.

FourGen Software, Inc.: 206-522-0055 Fax: 206-522-0053 • European Office: +31 (0)3402 74783 Fax: +31 (0)3402 74784

FourGen Software, Inc. 115 NE 100th Street, Seattle, WA 98125-8098

FourGen is a registered trademark of FourGen Software Technologies, Inc. Copyright © 1994 FourGen Software Technologies, Inc. All rights reserved. A-139 1/94

**FOURGEN**  
Low Risk Client/Server Mainframe Replacement™





# Congratulations to the 1993 ESPRIT Award Winners

---

## *AT&T Universal Card Services*

Marian Browne, *Vice President,  
Customer Relationships*  
Leslie Palmer, *Vice President,  
Emerging Technologies*

## *City of Chicago, Bureau of Parking*

Judith Rice, *City Parking Administrator,  
Bureau of Parking*  
Paul Vallas, *Director of Revenue,  
Department of Revenue*

## *Complete Health Services Inc.*

William W. Featheringill, *President & CEO*  
Richard Harley, *Director of MIS*

## *Los Angeles County, Department of Public Social Services*

Ray Garcia, *Bureau Director,  
Bureau of Administrative Services*  
Lisa Nunez, *Division Chief,  
Computer Services Division*

## *South Florida Water Management District*

John Lynch, *Department Director,  
Information Systems*  
James D. Yager, *Assistant Executive Director*

## *SynOptics Communications Inc.*

John Dick, *Chief Information Officer*  
William J. Ruehle, *Vice President & CFO*



Announcing  
The 1994 ESPRIT Awards  
*Honoring Excellence in  
Strategic Partnering for Return from  
Information Technology*

*ESPRIT Awards sponsored by*



THE MAGAZINE FOR INFORMATION EXECUTIVES

*and*

BOOZ·ALLEN & HAMILTON